GE Healthcare

CIC Pro™ Clinical Information Center

Service Manual

Software Version 5.0

Bedrock hardware platform

CIC Pro™ Clinical Information Center
English
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NOTE: The information in this manual only applies to CIC Pro center software versions 5.0 or later. It does not apply to earlier software versions. Due to continuing product innovation, specifications in this manual are subject to change without notice.

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1 Introduction

Equipment information

License agreement

It is important that you carefully read the terms and conditions of this license agreement before commencing the use of the clinical information center workstation (the “workstation”) and the clinical information center program recorded therein and any accompanying user documentation (“program”). This license represents the entire license agreement concerning the program between you and GE and supersedes all other communications or advertising related to the program except any terms and conditions of sale or warranties or warranty limitations relative to the program and/or the workstation as may be embodied in any documentation supplied with the workstation. By commencing the use of the workstation and the program contained therein, you are accepting and agreeing to be bound by all the terms and conditions of this license agreement. If you are not willing to be bound by the terms and conditions of this license agreement, you should promptly return the workstation to GE and you will receive a refund of the purchase price.

I. Grant

The Program is capable of coupling one to sixteen patient monitoring units to the Workstation. GE hereby grants you a non-exclusive, non-transferable right and license to use the Program for coupling the number of patient monitoring units to the Workstation for which a per-unit royalty has been paid pursuant to Article II hereof.

II. Royalty

You have paid GE a one-time, per-unit royalty equal to GE Medical Systems *Information Technologies*’ current published price for the use of the Program. The per-unit royalty is based on the actual number of patient monitors intended to be coupled by the Program to the Workstation as stated in the Purchase Order for the Workstation and the Program. If you use the Program to couple any patient monitoring units to the Workstation in addition to the number for which a per unit royalty was previously paid, you agree to pay GE an additional per-unit royalty equal to GE Medical Systems *Information Technologies* ' then current published royalty for the Program for each such additional patient monitoring unit so coupled. The additional per-unit royalty shall be paid to GE within 30 days of the use of the Program to couple any such additional patient monitoring units to the Workstation.

III. Limitations

You hereby agree not to: (1) use the Program in any network or system other than to couple patient monitoring units to the Workstation; (2) make any copy of the Program for any reason, or allow or assist others to do so; (3) modify, reverse engineer, de compile or disassemble the Program or merge any part of the Program into any other program; (4) rent, sell, sublease, assign, transfer or otherwise share the Program or any of your rights in the Program under this Agreement with any third party; or, (5) remove or alter any copyright notice, labels or trademarks from the Program or the Workstation.

IV. Title

This License is not a sale. Title and all copyrights to the Program and any copy made by you remains the sole property of GE.

V. Term

This Agreement shall continue in force until terminated. This Agreement shall terminate automatically when you cease using the Workstation and the Program for their intended purpose. GE may terminate this Agreement on 30 days written notice if you make any unauthorized copies of the Program or fail to comply with any of the restrictions on use of the Program as set forth herein.

VI. Limited warranty, disclaimer and limitation of liability

A. Licensor warrants that on the acceptance date the Program shall be free from significant programming errors and shall operate and conform to the published functional specifications applicable thereto, and that the Program shall conform to the standards generally observed in the industry for similar software.

B. This warranty shall be invalidated by your modification of the Program if such modification or the interaction between such modification and the Program as supplied by GE is the cause of the defect, error or non-conformity.

C. Except as stated above, the warranty covering the Program and the Workstation shall be either GE Standard Warranty or Limited Extended Parts Warranty as published by GE and hereby made a part hereof.

D. Except for the express warranties stated herein, GE disclaims all warranties with regard to the program including implied warranties of merchantability or fitness for a particular purpose.

E. GE Medical Systems *Information Technologies*' entire liability to you arising out of or in connection with this Agreement shall not exceed the per-unit royalty paid to GE for use of the Program. You acknowledge that the amount paid to GE for use of the Program is insufficient for GE to undertake any greater risk. In no event shall GE be liable for any indirect, incidental, consequential, special or exemplary damages (including without limitation, lost profits, business interruption, loss of business information, personal injury or any other pecuniary loss) arising from the use of the program, even if GE has been advised of the possibility of such damages.

VII. Governing law

This Agreement shall be governed by the laws of the State of Wisconsin.

VIII. Partial invalidity

If any provision of this Agreement is held invalid or unenforceable, the remaining portions of the Agreement shall continue in full force and effect.

Safety information

Responsibility of the manufacturer

GE is responsible for the effects of safety, reliability, and performance only if:

- Assembly operations, extensions, readjustments, modifications, or repairs are carried out by persons authorized by GE;
- The electrical installation of the relevant room complies with the requirements of the appropriate regulations.
- The equipment is used in accordance with the instructions for use.

Dangers

Indicates an imminent hazard which, if not avoided, will result in death or serious injury. There are no danger statements in this manual.

Warnings

Indicates a potential hazard or unsafe practice which, if not avoided, could result in death or serious injury.

WARNING
BEFORE USE — Before putting the system into operation visually inspect all connecting cables for signs of damage. Damaged cables and connectors must be replaced immediately.

Before using the system, the operator must verify that it is in correct working order and operating condition.

Periodically, and whenever the integrity of the product is in doubt, test all functions.

WARNING
POWER SUPPLY — The device must be connected to a properly installed power outlet with protective earth contacts only. If the installation does not provide for a protective earth conductor, disconnect the monitor from the power line and operate it on battery power, if possible.

GE recommends the use of an Uninterrupted Power Supply (UPS) with the CIC Pro center. If a UPS is *not* used, improper shutdowns of the system could result in the event of a power outage and cause a lengthy disk scan procedure when the unit reboots. You could also lose data in the event of a power outage if you do not use a UPS.

All devices of a system must be connected to the same power supply circuit. Devices which are not connected to the same circuit must be electrically isolated when operated.

WARNING

DISCONNECTION FROM MAINS — When disconnecting the system from the power line, remove the plug from the wall outlet first. Then you may disconnect the power cord from the device. If you do not observe this sequence, there is a risk of coming into contact with line voltage by inserting metal objects, such as the pins of leadwires, into the sockets of the power cord by mistake.

WARNING

NETWORK INTEGRITY — The CIC Pro center resides on the hospital's computer network, and it is possible that inadvertent or malicious network activity could adversely affect patient monitoring. The integrity of the computer network is the responsibility of the hospital.

WARNING

INTERFACING OTHER EQUIPMENT — Devices may only be interconnected with each other or to parts of the system when it has been determined by qualified biomedical engineering personnel that there is no danger to the patient, the operator, or the environment as a result. In those instances where there is any element of doubt concerning the safety of connected devices, the user must contact the manufacturers concerned (or other informed experts) for proper use. In all cases, safe and proper operation should be verified with the applicable manufacturer's instructions for use, and system standards IEC 60601-1-1/EN 60601-1-1 must be complied with.

WARNING

EXPLOSION HAZARD — Do NOT use this equipment in the presence of flammable anesthetics, vapors or liquids.

WARNING

DISCONNECTION FROM MAINS — When disconnecting the system from the power line, remove the plug from the wall outlet first. Then you may disconnect the power cord from the device. If you do not observe this sequence, there is a risk of coming into contact with line voltage by inserting metal objects, such as the pins of leadwires, into the sockets of the power cord by mistake.

WARNING

ACCIDENTAL SPILLS — To avoid electric shock or device malfunction, liquids must not be allowed to enter the device. If liquids have entered a device, take it out of service and have it checked by a service technician before it is used again.

WARNING

ACCURACY — If the accuracy of any value displayed on the screen or printed on a graph strip is questionable, first determine the patient's vital signs by alternative means. Then, verify the CIC Pro center and printer are working correctly.

WARNING

ALARMS — Do *not* rely exclusively on the audible alarm system for patient monitoring. Adjustment of alarm volume to a low level or off during patient monitoring may result in a hazard to the patient. Remember that the most reliable method of patient monitoring combines close personal surveillance with correct operation of monitoring equipment.

After connecting the monitor to the central station and/or nurse-alert system, verify the function of the alarm system. Repeat this verification periodically, including a check of all connected speakers.

CIC Pro center audible alarms will not sound for patients with bedside monitoring devices configured to “Operating Room” mode.

WARNING

DISPOSAL — Dispose of the packaging material, observing the applicable waste control regulations and keeping it out of children’s reach.

WARNING

LOSS OF MONITORING — If the monitoring at the CIC Pro center is temporarily interrupted, alternate monitoring devices or close observation of the patients must be used until the monitoring function at the CIC Pro center is restored.

Indications of a loss of the monitoring function at the CIC Pro center are as follows.

- RED SCREEN indicates the CIC Pro center application is restarting itself and patient monitoring at the CIC Pro center is NOT occurring. The monitoring function at the CIC Pro center will automatically resume in less than 30 seconds. No user action is required.

- BLUE SCREEN indicates the Windows® operating system has a functional error and patient monitoring at the CIC Pro center is *not* occurring. If the CIC Pro center does not automatically restart after 90 seconds, the monitoring function at the CIC Pro center will not resume until you turn off the power to the CIC Pro center and then turn the power

back on. The monitoring function should resume in approximately 90 seconds

Once the monitoring function at the CIC Pro center has been restored, you should verify the correct monitoring state and alarm function.

WARNINGS

CIC Pro center V5.0.x is in-unit compatible with CIC Pro center V4.0.x and V4.1.x. The CIC Pro center is not in-unit compatible with CIC Pro center V3.1 or earlier and is not in-unit compatible with any versions of Centralscope. Sharing of the same care unit name across CIC Pro centers having incompatible software versions can result in lost or corrupted telemetry alarm defaults data and loss of audible alarms.

Both hardwire and telemetry beds are limited in the number of remote view connections that can be supported.

Do not exceed a maximum of 15 CIC Pro centers in a single logical care unit.

Attempting simultaneous displays of a patient monitor (bedside or telemetry) at too many CIC Pro centers may cause lost or intermittent communication between CIC Pro centers and the patient monitor. This is evidenced by ***NO COMM*** or intermittent communication conditions for the beds.

The maximum CIC Pro centers viewing a patient monitor can vary depending on patient monitor capabilities and network design.

Do not load any software other than that specified by GE onto the CIC Pro. Installation of software not specified by GE may cause damage to the CIC Pro center or loss or corruption of data.

Cautions

Indicates a potential hazard or unsafe practice which, if not avoided, could result in minor personal injury or product/property damage.

CAUTION

ACCESSORIES (SUPPLIES) — Parts and accessories used must meet the requirements of the applicable IEC 60601 series safety standards, and or the system configuration must meet the requirements of the IEC 60601-1-1 medical electrical systems standard.

CAUTION

ACCESSORIES (EQUIPMENT) — The use of accessory equipment not complying with the equivalent safety requirements of the device may lead to a reduced level of safety of the resulting system. Consideration relating to the choice shall include:

- use of the accessory in the patient environment; and
- evidence that the safety certification of the accessory has been performed in accordance to the appropriate IEC 60601-1 and/or IEC 60601-1-1 harmonized national standards.

CAUTION

NEGLIGENCE — GE does not assume responsibility for damage to the equipment caused by improperly vented cabinets, improper or faulty power, or insufficient wall strength to support equipment mounted on such walls.

CAUTION

MPSO — Do not use a multiple portable socket outlet (MPSO) for a system because it could result in unacceptable enclosure leakage currents.

CAUTION

POWER REQUIREMENTS — Before connecting the device to the power line, check that the voltage and frequency ratings of the power line are the same as those indicated on the unit's label. If this is not the case, do not connect the system to the power line until you adjust the unit to match the power source.

In the U.S.A., if the installation of this equipment will use 240V rather than 120V, the source must be a center-tapped, single-phase circuit.

This equipment is suitable for connection to public mains as defined in CISPR 11.

CAUTION

RESTRICTED SALE — U.S. Federal law restricts this device to be sold by or on the order of a physician.

CAUTION
SECURITY — The web browser which runs in conjunction with the CIC Pro center is intended for hospital *intranet* use only. If confidential patient information is made available from the hospital intranet, the security of the data is the responsibility of the hospital.

CAUTION
SUPERVISED USE — This device is intended for use under the direct supervision of a licensed health care practitioner.

CAUTION
EMC — Magnetic and electrical fields are capable of interfering with the proper performance of the device. For this reason make sure that all external devices operated in the vicinity of the monitor comply with the relevant EMC requirements. X-ray equipment or MRI devices are a possible source of interference as they may emit higher levels of electromagnetic radiation.

Notes

Provides application tips or other useful information.

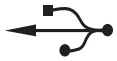
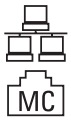
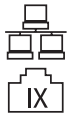
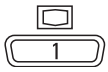
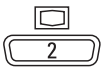
NOTE
This device is not intended for home use.

NOTE
Parts and accessories used must meet all local building and safety requirements.

NOTE
The patient environment is any volume in which intentional or unintentional contact can occur between the patient and parts of the system or between the patient and other persons touching parts of the system (IEC 60601-1-1).

Equipment symbols

The following symbols appear on the equipment, but some symbols may not appear on all equipment.

Equipment Symbols	
Symbol	Description
	ATTENTION: Consult accompanying documents before using the equipment.
	Provide electrostatic discharge damage protection.
	USB connector port
	Ethernet connector port used to connect to the Unity Network MC network.
	Ethernet connector port used to connect to the Unity Network IX network.
	External speaker connector port
	Primary video output connector port
	Secondary video output connector port
	Primary serial communication connector port
	Secondary serial communication connector port
	Power switch indicator. Indicates the power switch is in the on position when filled
	Power Off: Indicates the power switch is in the OFF position.
	Equipotential stud. A ground wire from another device can be tied here to ensure the devices share a common reference point.

Equipment Symbols	
Symbol	Description
	Type B applied part: Non-isolated applied part suitable for intentional external and internal application to the patient excluding direct cardiac application. [Medical Standard Definition:] Applied part complying with the specified requirements of IEC 60601-1/UL 60601-1/CSA 601.1 Medical Standards to provide protection against electric shock, particularly regarding allowable leakage current.
	Type BF applied part: Isolated (floating) applied part suitable for intentional external and internal application to the patient excluding direct cardiac application. “Paddles” outside the box indicate the applied part is defibrillator proof. [Medical Standard Definition:] F-type applied part (floating/isolated) complying with the specified requirements of IEC 60601-1/UL 60601-1/CSA 601.1 Medical Standards to provide a higher degree of protection against electric shock than that provided by type B applied parts. **NOTE** The rating of protection against electric shock (indicated by symbol for CF or BF) is achieved only when used with patient applied parts recommended by GE.
	Type CF applied part: Isolated (floating) applied part suitable for intentional external and internal application to the patient including direct cardiac application. “Paddles” outside the box indicate the applied part is defibrillator proof. [Medical Standard Definition:] F-type applied part (floating/isolated) complying with the specified requirements of IEC 60601-1/UL 60601-1/CSA 601.1 Medical Standards to provide a higher degree of protection against electric shock than that provided by type BF applied parts.
	Fuse. Replace the fuse with a fuse of the same type and rating.
	Power
	Writer door button
	Silence Alarm keyboard key
 4P41	Medical Equipment. With respect to electric shock, fire and mechanical hazards only in accordance with UL 60601-1 and CAN/CSA C22.2 NO.601.1, and IEC 60601-1.
	This symbol indicates that the waste of electrical and electronic equipment must not be disposed as unsorted municipal waste and must be collected separately. Please contact the manufacturer or other authorized disposal company to decommission your equipment.

Equipment Symbols	
Symbol	Description
2005-08	This symbol indicates the date of manufacture of this device. The first four digits identify the year and the last two digits identify the month.
	NOTE The following symbols (required by China law only) are representative of what you may see on your equipment.
	The number in the symbol indicates the EFUP period in years, as explained below. Check the symbol on your equipment for its EFUP period. This symbol indicates the product contains hazardous materials in excess of the limits established by the Chinese standard SJ/T11363-2006 Requirements for Concentration Limits for Certain Hazardous Substances in Electronic Information Products. The number in the symbol is the Environment-friendly User Period (EFUP), which indicates the period during which the toxic or hazardous substances or elements contained in electronic information products will not leak or mutate under normal operating conditions so that the use of such electronic information products will not result in any severe environmental pollution, any bodily injury or damage to any assets. The unit of the period is “Year”. In order to maintain the declared EFUP, the product shall be operated normally according to the instructions and environmental conditions as defined in the product manual, and periodic maintenance schedules specified in Product Maintenance Procedures shall be followed strictly. Consumables or certain parts may have their own label with an EFUP value less than the product. Periodic replacement of those consumables or parts to maintain the declared EFUP shall be done in accordance with the Product Maintenance Procedures. This product must not be disposed of as unsorted municipal waste, and must be collected separately and handled properly after decommissioning.
	This symbol indicates that this electronic information product does not contain any toxic or hazardous substance or elements above the maximum concentration value established by the Chinese standard SJ/T11363-2006, and can be recycled after being discarded, and should not be casually discarded.
	European authorized representative.
	Manufacturer name and address.

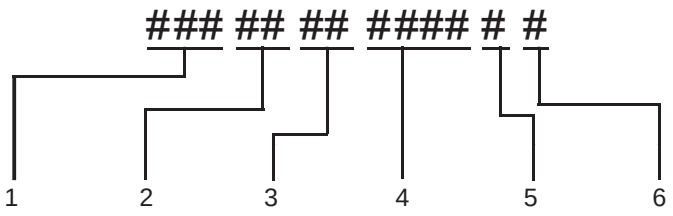
Service requirements

Follow the service requirements listed below, and in the “Maintenance” chapter of this manual.

- Refer equipment servicing to GE authorized service personnel only.
- Any unauthorized attempt to repair equipment under warranty voids that warranty.
- It is the user’s responsibility to report the need for service to GE or to one of their authorized agents.
- Failure on the part of the responsible individual, hospital, or institution using this equipment to implement a satisfactory maintenance schedule may cause undue equipment failure and possible health hazards.
- Regular maintenance, irrespective of usage, is essential to ensure that the equipment is always functional when required.

Equipment identification

Every GE device has a unique serial number for identification. A sample of the information found on a serial number label is shown below.



	Description
1	Product code[1]
2	Year manufactured
3	Fiscal week manufactured
4	Production sequence number
5	Manufacturing site
6	Miscellaneous characteristic

1. The product code for the CIC Pro center is SCH.

Manual information

Manual purpose

This manual supplies technical information for service representatives and technical personnel so they can maintain the equipment to the assembly level. Use it as a guide for maintenance and electrical repairs considered field repairable. Where necessary, the manual identifies additional sources of relevant information and technical assistance.

See the operator's manual for the instructions necessary to operate the equipment safely in accordance with its function and intended use.

Intended audience

This manual is intended for use by service representatives and technical personnel who maintain, troubleshoot, or repair the equipment.

Ordering manuals

A paper copy of this manual will be provided upon request. Contact your local GE representative and request the part number on the first page of the manual.

Conventions used

Bold text	Indicates keys on the keyboard, text to be entered, or hardware items such as buttons or switches on the equipment.
Bold Italicized text	Indicates software terms that identify menu items, buttons, or options in various windows.
Ctrl+Esc	Indicates a keyboard operation. A plus (+) sign between the names of two keys indicates that you must press and hold the first key while pressing the second key once. For example, "Press **Ctrl+Esc**" means to press and hold down the **Ctrl** key while pressing the **Esc** key.
<Space>	Indicates you must press the spacebar. When instructions are given for typing a precise text string with one or more spaces, the point where the spacebar must be pressed is indicated as <Space>.
Enter	Indicates you must press the **Enter** or **Return** key on the keyboard. Do not type "enter".

Revision history

The document part number and revision letter are listed at the bottom of each page in this manual. The revision letter identifies the document's update level. The revision history of this document is summarized below.

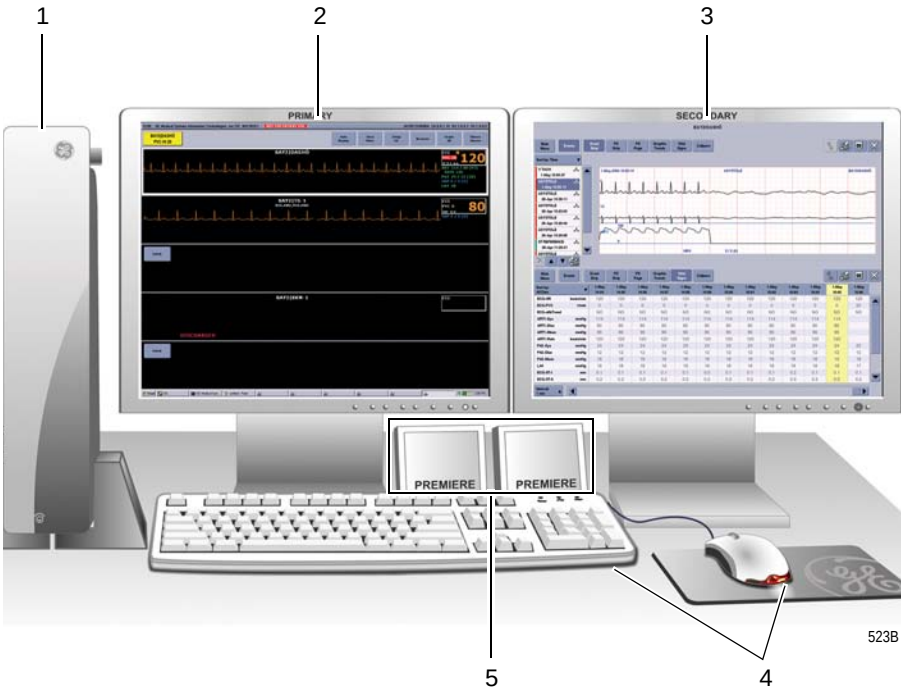
Revision History	
Revision	Comment
A	Initial release of the document item number to develop the Bills of Material.
B	Initial release of document content for limited customer use.
C	Initial release of document for all customers world wide.
D	Release of document with revisions to meet additional service requirements.
E	Added kPa information for Chinese language configurations, System Resource Management information and updated command-line utilities sections.
F	Release of document with revisions to address documentation defects in previous versions.

2 Equipment overview

Standard components

Standard components include the following items:

- Processor box
- Primary display
- External speakers
- Standard keyboard
- Standard mouse



Standard components

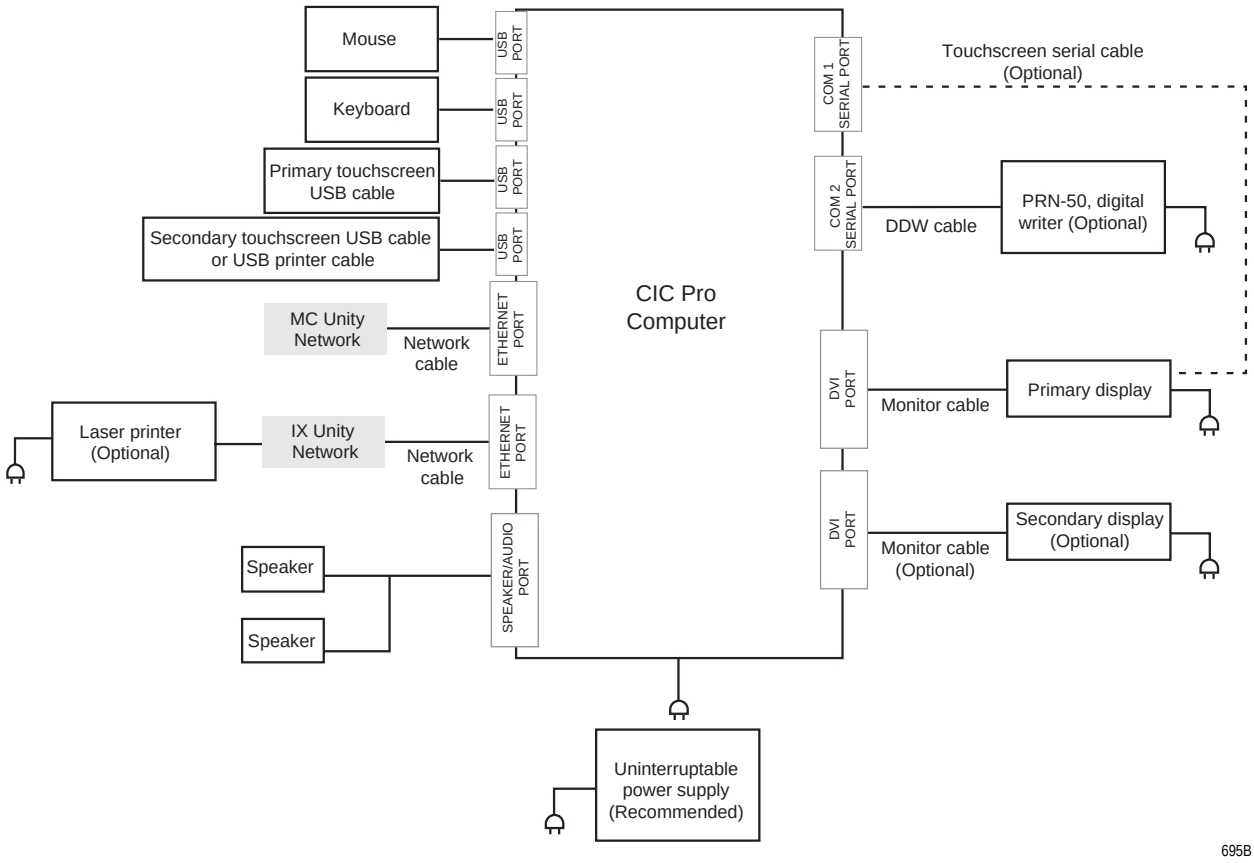
	Item	Function
1	Processor box	Run the CIC Pro center application.
2	Primary display	Display real-time and stored patient data, control windows, and various system-level operations. Up to two displays may be connected to the CIC Pro center simultaneously.
3	Secondary display (optional)	Display stored patient data and browser information.
4	Standard mouse and keyboard	Enter data, navigate menus, and choose options.
3	External speakers	Sound audible patient status and system status alarm tones.

Primary display

The CIC Pro center supports either a standard 19-inch or 20-inch color display or a standard 19-inch or 20-inch color touchscreen display. See “Optional components” on page 8-9.

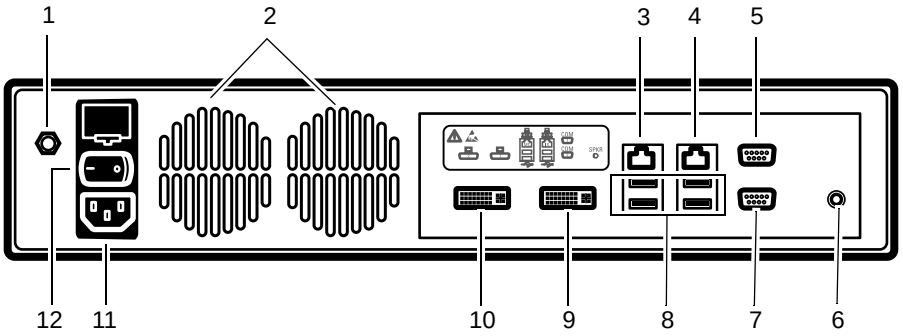
Processor box

System interconnection diagram



Back panel

The back panel of the processor box has the following connectors, ports, receptacle, and switch.



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Back panel of the processor box

	Item	Function
1	Equipotential stud	Connect a ground wire from another device to ensure the devices share a common reference point.
2	Ventilation ports	Vent internal processor heat to the outside of the processor box.
3	Unity Network MC Ethernet port	■ Interface with other networked GE patient monitoring and telemetry system devices. ■ Display waveform, parameter, and alarm condition data from other networked devices.
4	Unity Network IX Ethernet port	■ Connect to an optional network laser printer. ■ Share licenses with other CIC Pro centers within the same care unit. ■ Display full disclosure data. ■ Access remote serviceability. ■ Provide access to data and servers outside of your facility.
5	COM 1 port	Connect to the touchscreen display.
6	External speaker port	Connect to external speakers to hear patient and system status alarm notification.
7	COM 2 port	Connect to the PRN 50-M digital writer.

	Item	Function
8	USB ports	There are four USB ports you can use to connect the following devices: ■ Standard mouse. ■ Standard keyboard. ■ Touchscreen displays. ■ USB Memory stick. (Used to activate CIC Pro center licenses.)
9	Primary video port	Connect to the primary display.
10	Secondary video port	Connect to an optional secondary display.
11	Power receptacle	Connect the power cable.
12	Power switch	Press to turn on or to turn off.

Controls

Mouse

NOTE

If the ***MultiKM*** license is activated, you can connect one keyboard and one mouse to a group of centralized and configured CIC Pro centers. When the (***MultiKM*** icon) appears in the lower right corner of the display screen, the ***MultiKM*** license is activated on this CIC Pro center.

With the ***MultiKM*** license activated, you can do the following tasks:

- Move the mouse across all CIC Pro centers in the group.
- Access any CIC Pro center's display screen or enter text into any of the CIC Pro center's text fields in the group.
- Support right and left mouse clicks and scroll wheel movement.

Use a standard mouse to select menu options or patient data.

NOTE

When using the ***MultiKM*** software application, you may use one mouse and one keyboard across multiple centralized CIC Pro centers.

Using the mouse

- Clicking refers to positioning the mouse pointer on a selection and pressing the left mouse button once.
- Right clicking refers to clicking the right mouse button.
- This displays a control setting menu that allows you to temporarily adjust some of the defaults or to select a different patient bed to view. See the "*CIC Pro Clinical Information Center Operator's Manual"* for details.

Mouse pointer shapes

Depending on the operation mode of the CIC Pro center, the mouse pointer changes its appearance.

Pointer	Function
024A	Arrow: Indicates the CIC Pro center center is operating in user mode. Use the arrow pointer to select menu options, patient data, and to navigate from window to window.
025A	I-beam: Indicates the pointer is in a data entry field. Enter text when this pointer is displayed.
026	Cross: Indicates the CIC Pro center center is operating in service mode. **WARNING** QUALIFIED PERSONNEL — The service mode is intended for use only by qualified personnel with training and experience in its use. The consequences of misuse include loss of alarm configuration, loss of patient data, corruption of the CIC Pro center operating system software, or disruption of the entire Unity Network.

Keyboard

Use a standard keyboard to type text into a data entry field.

NOTE

When using the ***MultiKM*** software application, you may use one mouse and one keyboard across multiple centralized CIC Pro centers.

Typing text into a data entry field

To type text into a data entry field, position the mouse pointer over the data entry field. When the mouse pointer changes to an I-beam, click the left mouse button and begin typing.

Silence Alarms keyboard key

019A

NOTE

If the ***MultiKM*** license is activated, you must position the mouse cursor in the patient window of the CIC Pro center where the alarm condition is occurring. Then press the **Silence Alarms** keyboard key to silence all alarms on this CIC Pro center for one minute.

Press the **Silence Alarms** key to silence all alarms for one minute. Alarms that are in queue to sound are also silenced. Any new patient alarm condition cancels the alarm silence, breaking through to sound the new alarm.

Indicator

The power indicator is located on the front left side of the CIC Pro center's processor box. The power indicator illuminates green when the power is turned on.

Optional components

Optional components include the following items:

- Secondary display
- Touchscreen display
- Remote display with speakers
- Laser printer
- PRN 50-M digital writer
- Un-interruptible power supply (UPS)

Secondary display

Up to two displays may be connected to the CIC Pro center simultaneously.

From a secondary display, you can do the following:

- View all of the single viewer applications.
- Use the second display as a review display.
- View two single applications at the top and bottom half of the screen.
- View all applications (excluding Multi-view) in this second display.
- Navigate between applications via the enhanced software tools provided.
- Access custom views of routine applications using a single mouse click.

The following requirements apply when using a secondary display with your CIC Pro center:

- Secondary display monitors must be the same type and the same size as the primary display monitor. Only use the 19-inch or 20-inch display monitors that are validated for use with the v5 CIC Pro center.
- Secondary display monitors and primary display monitors must be set to the same 1280 x 1024 display resolution. No other display resolutions have been validated for use with the v5 CIC Pro center.
- Secondary display monitors can be a combination of touchscreen and non-touchscreen displays.
- Secondary display monitors will not function until you have first completed the

following tasks:

- Activate the ***LVSL*** or the ***LVSM*** license.
- Activate the ***DDIS*** license.
- Restart the CIC Pro center.

Touchscreen display

A touchscreen display allows you to select any selectable screen object by gently tapping the object with your finger.

NOTE

The touch screen display does not allow you to display the right click menu.

The following guidelines apply to using a touchscreen display:

- Applying tape or other items to the screen impairs the touchscreen's functionality.
- Using pencils, pens, or other sharp, pointed objects can damage the touchscreen.

Remote display with speakers

Networked remote displays can provide a duplicate (mirror image) view of a primary CIC Pro center. When speakers are connected to the remote displays, audible alarm tones can also be sounded.

Laser printer

A laser printer can be connected to the CIC Pro center to print the following patient data:

- Alarm graphs
- ECG numeric data and waveforms
- 12 lead ECG
- Arrhythmia events
- Events
- Caliper measurements
- Full disclosure
- Graphic trends
- ST alarm trends
- Vital signs

WARNING

SHOCK HAZARD — Laser printers are UL 60950/IEC 60950 certified equipment, which may not meet the leakage current requirements of patient care equipment. This equipment must not be located in the patient environment unless the medical system standard IEC 60601-1-1 is followed.

Do not connect a laser printer to a multiple portable socket outlet

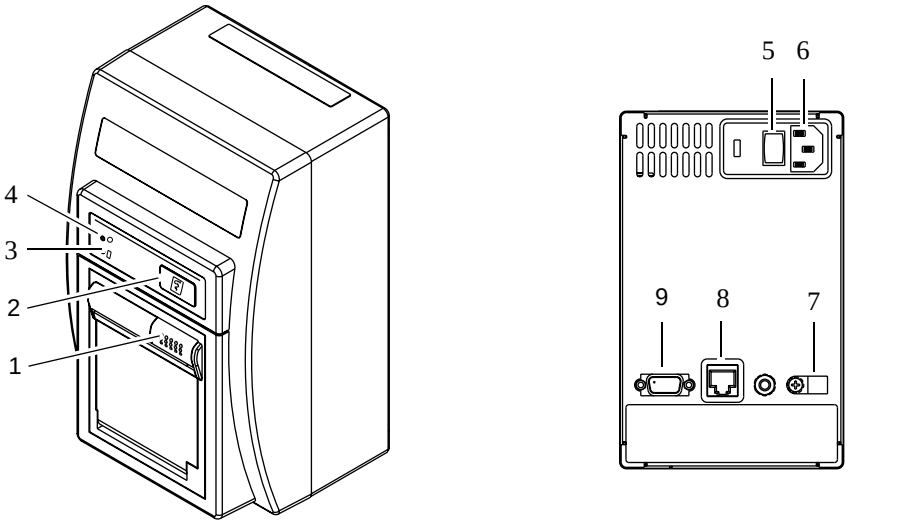
(MPSO) supplying patient care equipment. The use of an MPSO for a system will result in an enclosure leakage current equal to the sum of all the individual earth leakage currents of the system if there is an interruption of the MPSO protective earth conductor.

PRN 50-M digital writer

A PRN 50-M digital writer can be connected to the CIC Pro center to print the following patient data on 2-inch wide paper:

- Alarm graphs
- ECG numeric data and waveforms
- Graphic trends
- Vital signs

The following controls, indicators, and connectors are located on the digital writer.



PRN 50-M digital writer: front and back views

	Item	Function
1	Writer door button	Press to open the door and replace the writer paper.
2		Graph stop button. Press to stop printing a graph.
3		Paper out indicator. Illuminates when you need to replace the paper. See “Changing writer paper” on page 6-9.
4		Power indicator. Illuminates when the writer is connected to a power source.

	Item	Function
5	Power switch	Press to turn on or turn off the writer.
6	Power connector	Connect the writer's power cable.
7	Power cable clamp	Connect to the writer's power cable. This prevents the cable from being pulled out of the power connector.
8	M-port connector	Connect to the CIC Pro center's COM 2 port.
9	ASYNC COMM port	Not used.

Un-interruptible power supply (UPS)

WARNING
If power to the CIC Pro center is lost, patient monitoring information will no longer be displayed or stored.

GE recommends using an un-interruptible power supply with the CIC Pro center.

Without a UPS, power line outages may result in:

- Improper shut down of the CIC Pro center, causing lengthy disk scan procedures on reboot.
- Data loss.

Theory of operation

Functional description

The CIC Pro center application is designed to provide real-time patient data and alarms for central nurses' stations in hospitals. It can display real-time waveforms and vital sign data, with visual and audible alarms, for up to 16 patients simultaneously. The CIC Pro center supports both hardwired and telemetry data.

The CIC Pro center software allows users to select any bed on the Unity Network MC network and display an expanded view of that bed's real-time parameters and waveforms. This expanded view also allows users to view and modify settings within the care unit, and view a patient's other data (including alarm histories, graphic trends and tabular trends).

The user can configure the number of patients displayed by the system, and the number of displayed waveforms per patient. Waveform colors are configurable.

All configuration data is stored, and is restored after a system power cycle or software restart.

The CIC Pro center is connected to the Unity Network MC network via the Ethernet.

Physiological data

CIC Pro centers trend two types of physiological data: periodic and episodic.

Periodic data

Periodic data is constantly updated. Data is sampled every two seconds to yield 30 samples per minute. The displayed value is the median of the 30 samples. It is always the median of a one-minute time frame, regardless of the interval selected.

The interval is the time between values, not the time of the value itself. For example, a five minute interval means one minute samples spaced five minutes apart, not five minute samples, and not a median of the five one minute samples. Odd number values are rounded down to the nearest even number.

If the calibration of the system clock changes (for example, daylight saving time), the “time” for periodic data “slides” into the revised time. However, episodic data is time-stamped and retains its original time.

Examples of periodic data include heart rate (***HR***) and blood pressure (***BP***).

Episodic data

Episodic data are events that are user, or system, generated. Examples of episodic data include temperature (***Temp***) and non-invasive blood pressure (***NBP***).

File or data management

Log files

Log files generated by the CIC Pro center application, other associated applications and the CIC Pro center operating system are used during system analysis, problem diagnosis and troubleshooting. See “Log Files” on page 4-14 for more information about log files.

RWHAT packets

All monitoring devices on the GE Unity Network periodically broadcast information about themselves in “RWHAT” packets. Among other things, RWHAT packets contain IP address, port number, name, and offered services information about each device.

All monitoring devices listen for RWHAT packets, and maintain a database of information about other devices on the network. When devices need to communicate, the appropriate IP address information is obtained from the database, Unity Network-protocol messages are created, and operating system services are used to transmit the message on the network.

For example, when a CIC Pro center computer communicates with a telemetry device, the telemetry device’s IP address is retrieved from the CIC Pro center computer RWHAT database, the Unity Network messages are created, and the CIC Pro center Windows operating system sends the messages to the telemetry device.

Storage

- The FD Data interface uses the Unity Network IX network to retrieve data from the database.
- Each bed is stored in a separate directory, containing one index file and many record files.

Printing

- The ***FD Page*** printout is a configurable, long-time-period overview of waveform activity. It is activated by clicking the (print button) located in the top right corner of the ***FD Page*** window.
- The ***FD Strip*** printout is a quick snapshot of what is currently on the screen. It is activated by clicking the (print button) while the ***FD Page*** is being viewed.
- There is a separate full disclosure printer selection from the main laser printer selection on the setup page. Specifying a printer here does not advertise this CIC Pro center as a print server on RWHAT (like the main laser selection). It is used exclusively by the local FD system. A printer must be “Added” to the operating system before it will show up in the drop-down list.

Licensing

All features and functions of the CIC Pro center are determined by the licenses activated and running on each CIC Pro center. Licenses are specific to each individual CIC Pro center's serial number, are node locked, and cannot be used (floated) by another CIC Pro center.

Full disclosure

The CIC Pro center full disclosure (FD) system stores all waveform and parametric data from a patient for up to 76 hours. This data can be randomly accessed later in a static display that looks similar to the real-time display window. To accomplish this, every Unity Network waveform packet (4/sec) and every parameter packet (1 every 2 seconds) is stored on the CIC Pro center. In addition, one RWHAT packet and one admit packet is stored every minute to help recreate the patient's history.

Unlike an alarm history event stored at the bedside, which only stores a 10 second snap shot surrounding the event, full disclosure allows the user to scroll back in time (prior to the event and leading up to the event).

Behaviors or rules

Installation

- Incompatible with old FD system (prior to CIC Pro center v3.x).
- Certain ***Unit Defaults*** are incompatible with CIC Pro center v3.x systems.

Start-up modes

- ***Auto For All***: Automatically detects admitted beds that are not currently storing full disclosure data anywhere and attempts to start full disclosure on one of the CIC Pro centers within the care unit. This works regardless of whether the bed was admitted directly at the bedside or the CIC Pro center. Full disclosure cannot be stopped on a particular bed until the bed is discharged.
- ***Auto If Listed***: Same as ***Auto For All***, but only if the bed in question is entered into the list on the ***FD Unit Defaults*** setup screen. All other beds are not storing full disclosure data.
- ***Manual Mode***: Beds are not automatically storing full disclosure data upon admission. Users can manually start and stop full disclosure for a particular bed by using a button located on the ***CIC Setup*** > ***Full Disclosure Defaults*** window. All full disclosure data is deleted when full disclosure is stopped for a bed. See the "*CIC Pro Clinical Information Center Operator's Manual"* for more information.

Licensing

- Support for up to 16 patients per CIC Pro center.
- Stores 76 hours of data per patient regardless of license type. Licensing controls amount of data that is viewable.
- Unit Licensing Mode sets which type of license is requested. Supported types: None (1 hour), 24, 48, 72 hours.

- Failure to obtain a license results in one hour of viewable full disclosure.
- Licensing information is stored with data, so restrictions follow data regardless of where it is viewed, even if viewed in a different care unit with a different Unit License Mode.

Control

CIC Pro center master and full disclosure

NOTE

There is only one master CIC Pro center per care unit (with respect to full disclosure). The CIC Pro center with the lowest IP address becomes the master.

CIC Pro center master perform the following activities in one minute increments:

- Detects admitted (but not full disclosure data collection) beds within the care unit, for Auto modes.
- Assigns beds (for full disclosure acquisition) to CIC Pro centers within the care unit.
- Applies Multi-FD and Twin-Bed Rules.
- Uses the ***FDSvr*** process to find the ***FULL DISCLO*** service, identifying CIC Pro centers with full disclosure capability. The ***FULL DISCLO*** service is used by the CIC Pro center master while searching for other CIC Pro centers to query, control, and assign beds.

  NOTE

  The CIC Pro center master checks the software versions of the other CIC Pro centers before trying to identify CIC Pro centers with full disclosure capability. Software versions earlier than 2.5 are ignored.

- Uses the ***LocateFD*** service (provided by ***FDSvr***) to guarantee that the right CIC Pro center is contacted if retrieving data while a multi-full disclosure condition is occurring.

NOTE

A CIC Pro center will *not* act as master during the first minute after it starts up. Instead, the latest data is first collected from the other CIC Pro centers on the network, and this data determines which CIC Pro center becomes master. Multiple masters on a network might occur, but only briefly (this will self-correct within a couple of minutes).

Minute rule or the Offline Storage setting

(see "Set the Full Disclosure Defaults" on page 5-60):

The ***Offline Storage*** setting determines the length of time the CIC Pro center will maintain full disclosure data for a bed from which it has stopped receiving data (e.g., a ***NO COMM*** condition).

- If the ***NO COMM*** condition ends within the ***Offline Storage*** setting time frame, full disclosure data collection for the bed continues.

- If a ***NO COMM*** condition exceeds the ***Offline Storage*** setting time frame, all data for the bed is deleted. If (while in ***Auto*** mode) the bed comes back online (the ***NO COMM*** condition ends) after this point, the bed is reassigned as a new and different bed.
- When full disclosure starts up on a CIC Pro center, it determines when data was last received from the assigned beds.

  If the latest data for a bed:

  - Is not older than the ***Offline Storage*** setting, then full disclosure data collection continues for the bed.
  - Is older than the ***Offline Storage*** setting, existing data associated with the bed is deleted, and new data collection is started for the bed.

Multi-full disclosure rule

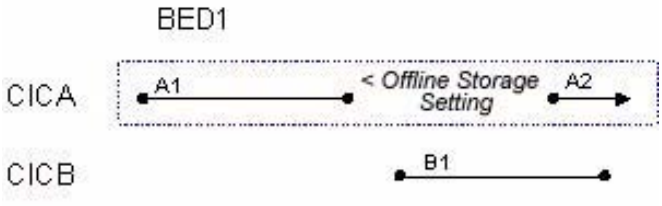
If multiple CIC Pro centers are running in a care unit, the Multi-full disclosure rule allows the switching of full disclosure data collection from one CIC Pro center to another, if a CIC Pro center goes offline (e.g., reboot, shutdown, etc.).

The following examples describe how the Multi-full disclosure rule works when using two CIC Pro centers (CICA and CICB).

NOTE

In the examples, start up mode is ***Auto***, and only one bed (BED1) is used.

Example 1:



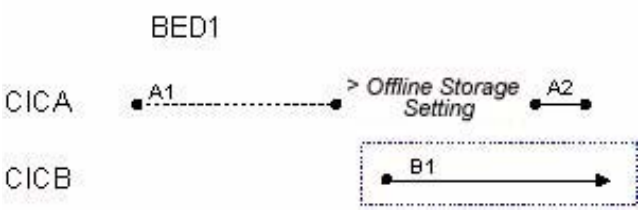
1. CICA goes offline and stops full disclosure data collection on BED1. This causes CICB to begin full disclosure data collection on BED1.

   NOTE

   The master CIC Pro center detects CICA going offline, and switches full disclosure data collection over to CICB, within a minute of the offline event occurring.

2. CICA comes back online within the ***Offline Storage*** setting time frame, and continues full disclosure data collection on BED1 again. At this point, CICA and CICB are both collecting full disclosure data on BED1.
3. The Multi-full disclosure rule does not allow more than one CIC Pro center to collect full disclosure data from the same bed at the same time--only the data that goes the farthest back in time (CICA) is kept. Because of this, CICA continues collecting full disclosure data on BED1, and CICB stops.

Example 2:



1. CICA goes offline and stops collecting full disclosure data on BED1. This causes CICB to begin collecting full disclosure data on BED1.

   NOTE

   The master CIC Pro center detects CICA going offline, and switches full disclosure data collection over to CICB, within a minute of the offline event.

2. CICA comes back online after exceeding the ***Offline Storag***e setting time frame. Because of this, existing BED1 data is deleted from CICA, and the new BED1 data collection begins on CICA. At this point, CICA and CICB are BOTH collecting full disclosure data on BED1.

3. The Multi-full disclosure rule does not allow more than one CIC Pro center to collect full disclosure data from the same bed at the same time (only the data that goes the farthest back in time (CICB) is kept). Because of this, CICB continues collecting full disclosure data from BED1, and CICA stops.

NOTE

At every wake-up cycle (1 minute interval), the CIC Pro center master scans all CIC Pro centers within the care unit to determine if more than one CIC Pro center is collecting full disclosure data from the same bed (this can happen as part of normal operation). If the master detects this condition, all CIC Pro centers are instructed to stop collecting full disclosure data from the bed *except* for the one CIC Pro center with the *oldest* data for the bed.

Combo mode (Twin-bed rule)

In combo mode:

1. Two beds are on the network: one is a hardwired bed, and the other is telemetry bed. Both beds share the same name (e.g. BED), but '*' is appended to the telemetry bed name (e.g. BED and BED*). Both beds represent the same patient.

   NOTE

   If the CIC Pro center was not functioning in combo mode, these two beds would be treated as distinct and separate.

2. Only the oldest bed data is kept. Data for the other bed is deleted.

3. No matter which data is kept, full disclosure data collection continues, and the data is stored under the bed name, but without the '*'.

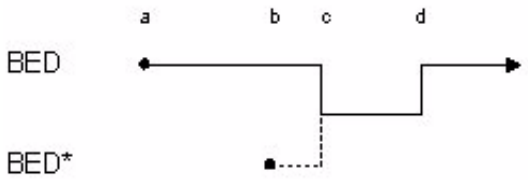
   Combo mode is stopped (breaking combo) by discharging either bed. If this happens, full disclosure data collection continues on the *undischarged* bed, and the data is stored under the *undischarged* bed name.

NOTE

If the hardwired bed is discharged, '*' would again be included in the name.

To follow are combo mode examples:

Combo Mode Example 1:



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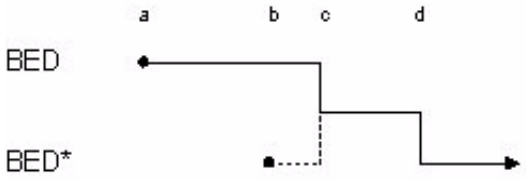
a. A hardwired bed BED is admitted and full disclosure data is collected.

b. A telemetry bed BED* is admitted and full disclosure data is collected. Two separate full disclosure data stores exist, one for each bed (possibly on a different CIC Pro centers).

c. The two beds are put into combo mode. When this happens, BED data is kept because it is older than BED* data, and BED* data is deleted. Full disclosure data collection continues, and the data is stored under the name BED.

d. Combo is broken by discharging BED*. Full disclosure data collection continues, with the data still stored under the name BED.

Combo Mode Example 2:



715A

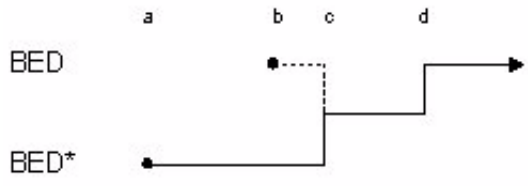
a. A hardwired bed BED is admitted and full disclosure data is collected.

b. A telemetry bed BED* is admitted and full disclosure data is collected. Two separate full disclosure data stores exist, one for each bed (possibly on a different CIC Pro centers).

c. The two beds are put into combo mode. When this happens, BED data is kept because it is older than BED* data, and BED* data is deleted. Full disclosure data collection continues, and the data is stored under the name BED.

d. Combo is broken by discharging BED. Full disclosure data collection continues, and the data is *now* stored under the name BED*.

Combo Mode Example 3:



716A

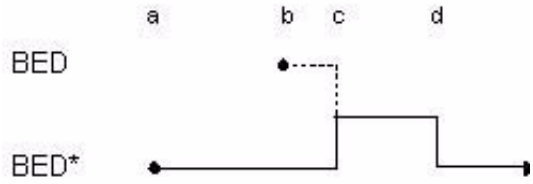
a. A telemetry bed BED* is admitted and full disclosure data is collected.

b. A hardwire bed BED is admitted and full disclosure data is collected. Two separate full disclosure data stores exist, one for each bed (possibly on a different CIC Pro centers).

c. The two beds are put into combo mode. When this happens, BED* data is kept because it is older than BED data, and BED data is deleted. Full disclosure data collection continues, and the data is stored under the name BED*.

d. Combo is broken by discharging BED*. Full disclosure data collection continues, and the data is still stored under the name BED.

Combo Mode Example 4:



717A

a. A telemetry bed BED* is admitted and full disclosure data is collected.

b. A hardwired bed BED is admitted and full disclosure data is collected. Two separate full disclosure data stores exist, one for each bed (possibly on a different CIC Pro center).

c. The two beds are put into combo mode. When this happens, BED* data is kept because it is older than BED data, and BED data is deleted. Full disclosure data collection continues, and the data is stored under the name BED.

d. Combo is broken by discharging BED. Full disclosure data collection continues, and the data is *now* stored under the name BED*.

Bed Name/IP Address Changes

The CIC Pro center tracks full disclosure data for individual beds using a combination of the bed name and IP address.

If a bed name changes during full disclosure data collection, information within the data reflects the new name at the point the name change occurred.

If a bed IP address changes during full disclosure data collection, but the name does not, it is interpreted as a new and different bed, and a new full disclosure data store is created and utilized for the new bed.

If a bed goes offline, and another bed with the same name but a different IP address comes online, it is interpreted as a new and different bed and a full disclosure data store is created and utilized for it. However, the following conditions apply:

- If the bed that went offline (with the original IP address) comes back online within the ***Offline Storage*** setting time frame, the two beds continue to be treated as separate, since the different IP addresses positively identify them as distinct and separate.
- If the bed that went offline (with the original IP address) *does not* come back online within the ***Offline Storage*** setting time frame, the bed with the new IP address is interpreted as a *replacement* for the bed with the original IP address. In this case, the full disclosure data for the bed with the original IP address is deleted, and full disclosure data collection continues, and the data is stored under the bed with the new IP address *only*.

Unit Boundary

- Each care unit operates independently with respect to full disclosure. The only interaction is when displaying data across care units.
- License mode: All beds within a care unit will have access to the same amount of data storage (based on time) unless there is a failure to get a license (1 hour). Can be different across different care units (e.g., UnitA-72hours, UnitB-None (1 hour).
- Start-up mode: The same start-up rules apply to all beds within a care unit.
- Default: The same full disclosure defaults are used on all CIC Pro centers within a care unit.
- Master: One per care unit.
- Acquisition/Storage: The master CIC Pro center will only assign beds within the care unit to CIC Pro centers within that care unit. At no time will data for a bed be stored on a CIC Pro center in a different care unit.
- Bed Unit Changes: If a bed changes its care unit name during full disclosure data collection, all data for the bed is deleted. The care unit where the bed moved becomes responsible for the bed.
- CIC Pro center Unit Changes: If a CIC Pro center changes its care unit name during full disclosure data collection, all data for all beds being having full disclosure data collected by that CIC Pro center is deleted. The care unit with the original name is responsible for the beds.

Networking

Patient monitoring network

The CIC Pro center processes and displays real-time data acquired from up to 16 networked GE monitors or telemetry transmitters connected to the Unity Network.

When patient data is acquired from ApexPro telemetry transmitters (telemetry beds), the data is transmitted to a telemetry receiver where it is then transferred to the Unity Network via a wired connection. The CIC Pro center displays this telemetry bed patient data along with the patient data acquired from other monitors.

Web access server network

WARNING
INTERNET EXPLORER FAVORITES—Saving Internet Explorer Favorites (bookmarks) for web pages containing patient data is not recommended. Doing so may result in patient data displayed in Internet Explorer not matching the patient's medical number on the Launch Pad or iPanel application toolbar.

CAUTIONS
SECURITY—The healthcare institution is responsible for ensuring the privacy of any protected health information that is displayed on this device.

SECURITY—The web browser which runs in conjunction with the CIC Pro center is intended for hospital *intranet* use only. If confidential patient information is made available from the hospital intranet, the security of the data is the responsibility of the hospital.

The CIC Pro center can provide access to a Citrix Client or an intranet browser for viewing other applications (e.g., the hospital information system) or other sources of patient data (e.g., labs, images, or MUSE™ Cardiology Information System data).

Access to a Citrix server or intranet server depends upon how your CIC Pro center is configured and your on-site information technology offerings.

To set up a Citrix Client, see "Setting up a Citrix client" on page 5-38.

CITRIX Intranet web portal

You can use the Citrix Client to view patient data from other data systems or repositories.

Complete the following steps to access the Citrix server:

1. From the multi-patient viewer, click ***Browser***. The ***Browser*** window displays.
2. From the menu bar, click ***Citrix*** to display the ***Citrix*** window.

Web browser intranet web portal

WARNING
LOSS OF MONITORING — If the browser function is inappropriately used, loss of monitoring function may result. Use alternate monitoring devices or close patient observation until the monitoring function at the CIC Pro center is restored.

When using the browser, follow these restrictions:

- Do not attempt to access the file systems of the CIC Pro center through the use of the browser.
- Do not attempt to download files of any type. This includes, but is not limited to, audio or video files.

The CIC Pro center can provide a web portal to access and view other in-hospital web applications or other sources of patient data. This web browser option is at the top right corner of the title bar of the CIC Pro center display screen. Select this button to start a separate Microsoft Internet Explorer™ application.

If a patient monitoring alarm occurs while the browser is open, the CIC Pro center application window moves to the foreground of the display, and the browser window moves to the background of the display. To restore the browser window, select the Browser option again or select the ***Internet Explorer*** button from the lower task bar.

The web browser runs independently of the CIC Pro center application. However, if the CIC Pro center detects 15 minutes of web browser inactivity, the web browser window closes. Subsequent web browser activity then requires you to select the ***Browser*** option to restart the program.

Complete the following steps to access the intranet browser application:

1. From the multi-patient viewer, click ***Browser***. The web access server window displays.
2. Click ***Browser*** to display the intranet browser application.
3. Under ***Favorites***, click the web site you want to access.

Patient data interface

The CIC Pro center allows you to view patient data using two different viewers, varying in data granularity:

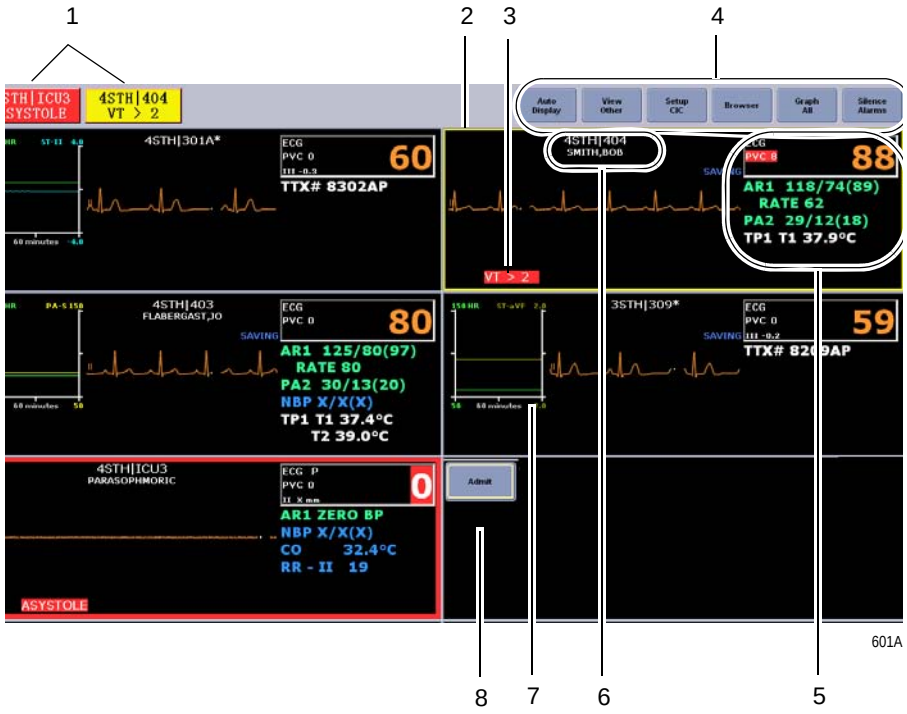
Multi-patient viewer

Single patient viewer

Multi-patient viewer

The multi-patient viewer displays a snapshot of real-time waveform data and parameter numeric data for a maximum of 16 patients.

The following picture identifies different areas of the multi-patient viewer.



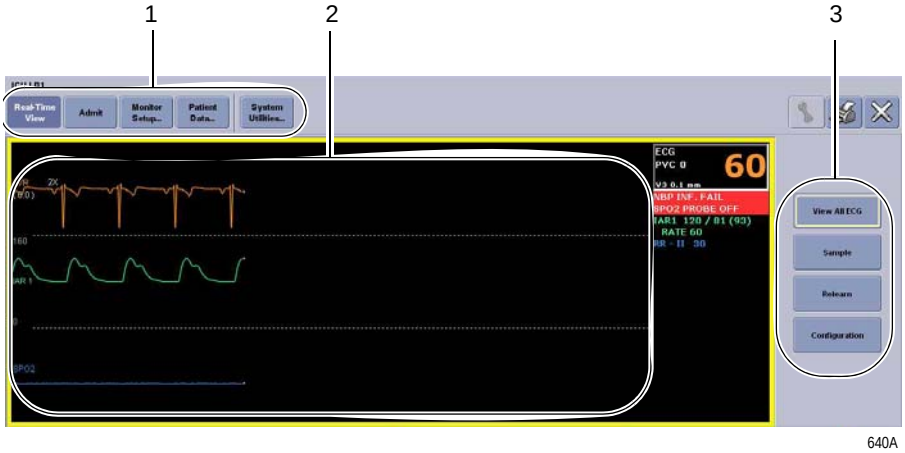
Multi-patient viewer	
	Description
1	Alarm buttons. Show the care unit name, bed number, and the cause of the alarm. This screen location is also known as the Alarm Display Unit (ADU) line.
2	Colored border alarm indicator. The patient window is outlined in red or yellow to identify a patient alarm condition. The alarm message is also displayed.
3	Alarm message.

Multi-patient viewer	
	Description
4	Multi-viewer menu bar buttons. See the CIC Pro Clinical Information Center Operator's Manuals for details.
5	Additional parameter information.
6	Patient name and Unit Name / Bed Name. **NOTE** The source of a patient's parameter data can be from a monitor, a telemetry transmitter, or from both a monitor and a telemetry transmitter. To prevent the duplication of bed names and to help you identify the parameter data source, the CIC Pro center appends the following symbols to the bed name: ◆ no symbol = monitor (e.g. Unit Name/Bed Name). ◆ * = telemetry bed (e.g. Unit Name/Bed Name*). ◆ + = monitor with a Unity Network ID connection (e.g. Unit Name/Bed Name+). ◆ *+ = telemetry bed with a Unity Network ID connection (e.g. Unit Name/Bed Name*+).
7	Real-time trend window.
8	Empty patient window displaying an ***Admit*** window.

Single patient viewer

The single patient viewer allows you to view detailed real-time or stored parameter data for one patient.

The following picture identifies different areas of a single patient viewer window.



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Single patient viewer	
Item	Description
1	Single patient viewer menu buttons.
2	Expanded waveform data.
3	Single patient viewer control buttons

Patient data

You can view real-time patient data or retrieve and view patient data that has been collected and stored at the CIC Pro center.

Real-time patient data

Monitored parameters

The CIC Pro center can retrieve and display many different types of parameter data from patient monitors connected to the Unity Network It can also retrieve and display many different types of parameter data from secondary devices connected through a Unity Network Interface.

NOTE

A more complete list of supported parameters is included in the "*CIC Pro Clinical Information Center Operator's Manual*."

For detailed parameter monitoring instructions, see the appropriate monitor or telemetry system operator's manual.

For detailed clinical and troubleshooting information, see the "*Critical Care Monitoring Clinical Reference and Troubleshooting Guide*."

Real-time trend window

The multi-patient viewer can be configured to display a real-time trend window. This trend window displays the recent trends for a maximum of two parameters. Each trend contains one hour of data displayed at one minute intervals. When you

see a trend variation, you can review this trend more closely from the ***Graphic Trends*** tool.

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Real-time trends display from left (older data) to right (newer data)

To review a trend, click in the real-time trend window. The single patient viewer automatically displays the ***Graphic Trends*** window for this patient.

To configure the real-time trend window, see the "*CIC Pro Clinical Information Center Operator's Manual*."

Stored patient data

You retrieve in-unit parameter data from patient monitors connected to the Unity Network and retrieve parameter data from secondary devices connected through a Unity Network Interface. In addition, can use the following CIC Pro center patient data review tools to examine the data more closely:

- *Events*: Review any crisis, warning, or advisory level arrhythmia event or ST event that is saved in the *Events* directory. You can also view saved ST references and sample ECG waveforms.
- *Event strip*: Review 10-second snapshot of event data. The strip displays 5-seconds of data before the event occurred and 5-seconds of data during the event.
- *FD Strip*: Review a 10-second snapshot of available full disclosure parameter waveforms and values. You can scroll through the displayed data to change the

data's time focus.

- *FD Page*: Review a maximum of 72 hours of the most current full disclosure waveform and parameter numeric data. The amount of full disclosure data collected for a patient is determined by the type of licenses installed on the CIC Pro center.
- *Graphic Trends*: Review parameter numeric data over a specified period of time in bar graph format.
- *Vital signs*: Review parameter numeric data values for monitored parameters over a selected period of time.
- *Calipers*: Record measurements on the ECG waveforms

Service interfaces

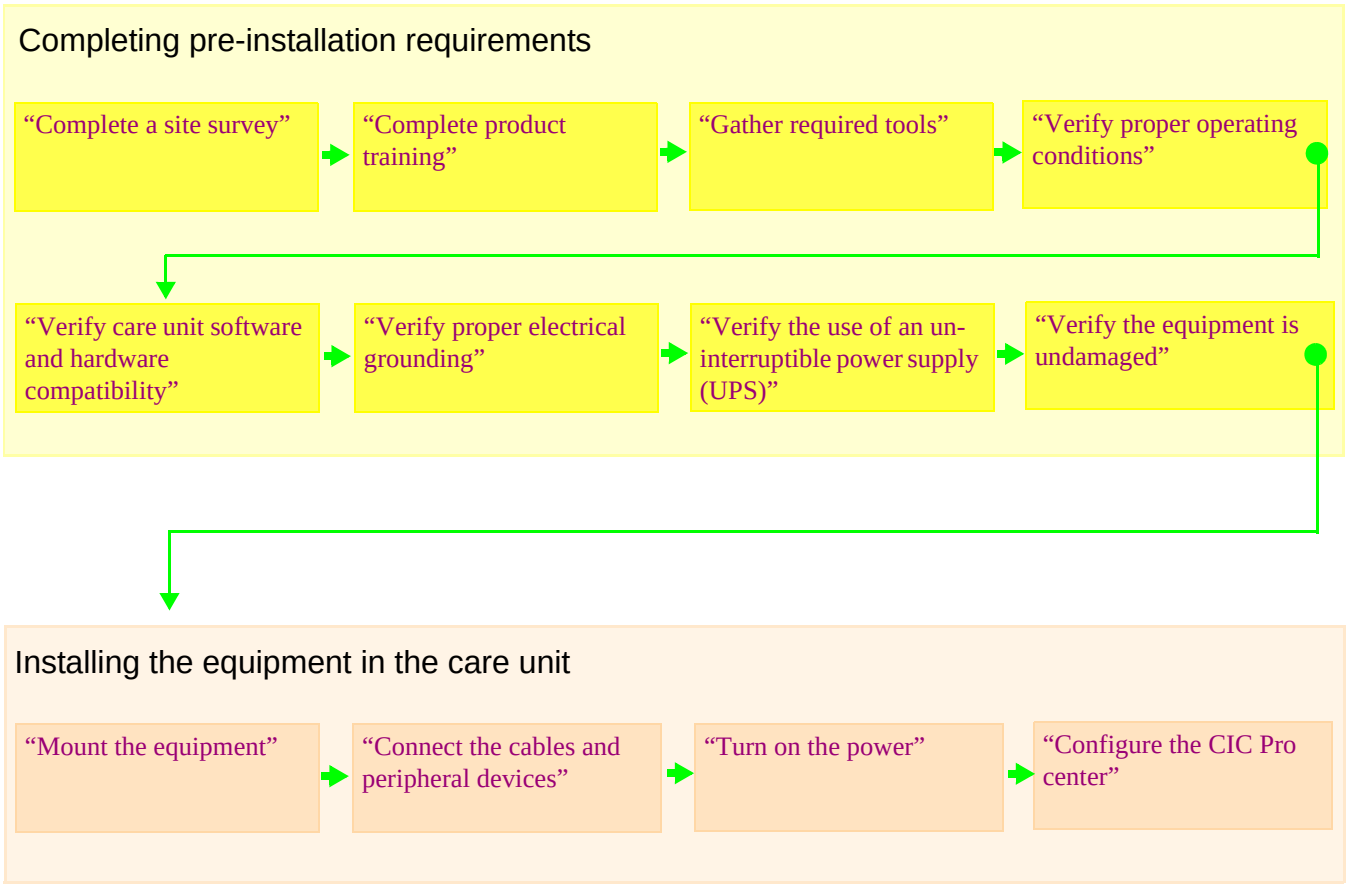
The CIC Pro center provides local, on-site remote, and off-site remote service interfaces for configuring, troubleshooting, and completing some of the checkout procedures.

See Chapter 4, "Service interfaces" .

3 Installation

The installation process

After un-crating your equipment and inspecting it for damage, you can begin the physical installation process of the CIC Pro center. The following graphic illustrates the pre-installation requirements and the physical installation process flow:


Completing pre-installation requirements
“Complete a site survey”
“Complete product training”
“Gather required tools”
“Verify proper operating conditions”
“Verify care unit software and hardware compatibility”
“Verify proper electrical grounding”
“Verify the use of an un-interruptible power supply (UPS)”
“Verify the equipment is undamaged”
Installing the equipment in the care unit
“Mount the equipment”
“Connect the cables and peripheral devices”
“Turn on the power”
“Configure the CIC Pro center”

Completing the pre-installation requirements

This section describes the pre-installation requirements that must be completed before physically installing the CIC Pro center.

Complete a site survey

CAUTION
Failure to complete a pre-purchase site survey may lead to improper performance of the CIC Pro center.

A site survey with all network design, installation, and testing must be completed and documented prior to equipment installation. The site survey is completed by authorized GE personnel.

Complete product training

Product training is recommended prior to installing, configuring, and calibrating the CIC Pro center. Contact your Regional Service Manager or the sales representative for your region to determine specific training needs.

Gather required tools

- A standard set of hand tools is required for equipment installation.

Verify proper operating conditions

CAUTION
The CIC Pro center uses an internal forced-air cooling system, but most displays do not. The user must determine the heat dissipation requirements of the selected display and provide for any required cooling ventilation.

Environmental limits

The CIC Pro center operates reliably within normal office environmental limits. Select a site which meets the following criteria:

- Clean and reasonably free of excess dust. Dust accelerates system wear.
- Well-ventilated and away from sources of heat.
- Away from sources of vibration or physical shock.

Electromagnetic fields and electrical noise

The CIC Pro center should be isolated from strong electromagnetic fields and electrical noise produced by electrical devices such as:

- Elevators
- Copy machines
- Air conditioners, large fans
- Large electric motors
- Radio and TV transmitters
- High frequency security devices
- High-load medical devices (e.g. imaging, defibrillators, etc.)

Clearance and airflow

Keep the CIC Pro center ventilation openings free of obstructions. The CIC Pro center physical location should provide at least the following minimal ventilation clearances:

Minimum ventilation clearance	
Front	20.5 centimeters (8 inches)
Back	20.5 centimeters (8 inches)
[1]Bottom	1 centimeter (3/8 inches)

1. The vent holes in the bottom of the unit must not be obstructed. A minimum airspace of 1 centimeter (3/8 inches) must be provided between the vent holes and the supporting surface. When installed with the bottom vent holes down, the unit must be on a hard flat surface with the bottom feet intact.

   Do not remove the bottom feet or operate with the bottom of the unit on a carpeted surface.

   If installed with the vent holes in the bottom surface to the side (standing on a side, or “vertical” installation), a minimum of 1 centimeter (3/8 inches) clearance must be provided between the vent holes and the adjacent surface.

Access space

WARNING

Ample access for AC power cord disconnect (from the wall outlet, or from the back of the unit) is vital to provide positive AC power disconnection for service or in the event of emergency.

Physical specifications

See “Physical specifications” on page A-7

Verify care unit software and hardware compatibility

WARNING
BEFORE INSTALLATION — Compatibility is critical to safe and effective use of this device. Please contact your local sales or service representative prior to installation to verify equipment compatibility.

When installing a CIC Pro center into a care unit, you need to verify that the CIC Pro center's hardware and software are compatible with care unit's operating environment. See the "*CIC Pro Clinical Information Center V5.0 What's in this Release Instructions*" shipped with the product and with the software upgrade and update kits.

Verify proper electrical grounding

Duplex power outlet

A properly grounded duplex power outlet is required for each CIC Pro center. Additional outlets may be required to accommodate connected peripheral equipment. The power outlet must be installed in an approved junction box. Use only a three-prong, polarized, hospital-grade power outlet to accept the three-prong polarized CIC Pro center power plug.

Grounding system

WARNING
SHOCK HAZARD — The CIC Pro center and all peripheral equipment must be adequately grounded or a shock hazard may exist.

Do not use plug adapters that defeat the grounding capability of the three-prong power plug. An ungrounded electrical device presents a potentially severe and dangerous shock hazard.

The grounding pin of all power outlets and all exposed metal parts (beds, radiators, water pipes, etc.) in any patient area should be electrically connected together. This common ground point should be connected to the nearest equipotential ground through a bonded grounding system, or with a 10 AWG stranded copper grounding cable.

The equipotential ground point should be as close to earth ground potential as possible. If a bonded grounding system is not available, the ground pin of each power outlet must be individually connected to a central grounding point. Do *not* jumper from ground pin-to-ground pin of the outlets.

The grounding system must not carry current, such as a grounded neutral, since the current flow will produce potential differences along the ground path. These potential differences are a shock hazard source for equipment users and patients.

Do NOT use conduit as a ground conductor. Plastic (PVC) piping or fittings used in the conduit runs can break the electrical connection to ground, resulting in potential shock hazards.

The electrical grounding system should be connected to an earth ground. If this is not possible, then a good ground reference, such as a metal water pipe, or an electrically-conductive building component, should be used. It is more important that all grounded objects in the patient area are at the same ground potential rather than at earth ground potential.

Verify the use of an un-interruptible power supply (UPS)

WARNING
If power to the CIC Pro center is lost, patient monitoring information will no longer be displayed or stored.

UPS recommendations

GE recommends using an un-interruptible power supply (UPS) with the CIC Pro center.

Without a UPS, power line outages may result in:

- Improper shut down of the CIC Pro center, causing lengthy disk scan procedures on reboot
- Data loss.

Follow the manufacturer's recommendations for installing the UPS.

See "Optional components" on page 8-9 for a listing of UPS units available for the CIC Pro center.

UPS run-times and options

WARNING
Connect the UPS to the CIC Pro center(s) and display monitor(s) only. Do *not* connect printers or other devices to a UPS, as such devices may shorten estimated run-times. If AC line power is not restored before UPS run-time is exceeded, the CIC Pro center shuts down and patients will not be monitored.

The uninterruptable power supply (UPS) run-times are affected by the following conditions:

- Battery age.
- Ambient temperature.
- Site specific UPS usage patterns.
- Load characteristics.

Your actual run times may be different.

The following table identifies estimated un-interruptible power supply (UPS) run-times resulting from estimated load requirements:

Estimated UPS run-times			
Total CIC Pro centers connected to UPS	Total 19” or 20” displays connected to UPS	Total load with CIC Pro centers and displays (estimated watts)	UPS Run time (estimated minutes)
1	1 display (primary)	90 W	60
1	2 displays (secondary)	140 W	38
2	4 displays (2 secondary)	180 W	30

NOTE

The CIC Pro center Bedrock hardware draws approximately 40 watts of power. The 19” and 20” displays each draw approximately 50 watts of power.

See “Optional components” on page 8-9 for UPS part number information.

Verify the equipment is undamaged

Unpack the equipment and inspect for shipping damage:

1. Remove all equipment, including all peripheral devices, from the shipping cartons. Inspect for damage. If any damage is found, contact GE Technical Support.
2. Identify all required cables and prepare them for installation.
3. Complete the “Visual inspection” on page 6-5 to inspect for shipping damage.

Installing the equipment in the care unit

This section describes the procedures required to install the equipment and components in the care unit:

WARNINGS

CIC Pro center V5.0 is in-unit compatible with CIC Pro center V4.0.x, but is not with versions of CIC Pro center V3.1 or earlier and is not in-unit compatible with any versions of Centralscope. Sharing of the same care unit name across central stations having incompatible software versions can result in lost or corrupted telemetry alarm defaults data and loss of audible alarms.

Both hardwire and telemetry beds are limited in the number of remote view connections that can be supported.

Do not exceed a maximum of 15 CIC Pro centers in a single logical care unit.

Attempting simultaneous displays of a patient monitor

(bedside or telemetry) at too many CIC Pro centers may cause lost or intermittent communication between CIC Pro centers and the patient monitor. This is evidenced by ***NO COMM*** or intermittent communication conditions for the beds.

The maximum CIC Pro centers viewing a patient bedside monitor can vary depending on bedside monitor capabilities and network design.

WARNING

Only external devices specifically designed to be connected to the CIC Pro center, or approved by GE for use with the CIC Pro center, should be connected, as specified in this manual or as otherwise specified by the manufacturer.

A shock hazard may exist if external devices are connected differently from described in this manual, or as directed by the manufacturer.

External equipment must be connected to the CIC Pro center only by qualified biomedical engineering personnel.

When using keyboard/video/mouse (KVM) switching devices with the CIC Pro, only the keyboard and mouse should be switched through the KVM. The video for each CIC Pro should be displayed on its own monitor. Failure to do so may result in delayed recognition of alarm events.

WARNING

SITE REQUIREMENTS — Do not route cables in a way that they may present a stumbling hazard.
For devices installed above the user, adequate precautions must be taken to prevent them from dropping on the user.

CAUTIONS

All external cabling used with the CIC Pro center must be routed so it does not interfere with access to, or operation of, the CIC Pro center. Install cabling to guard against tripping and accidental cable disconnection.

Do NOT apply power until all equipment is installed and ready for use.

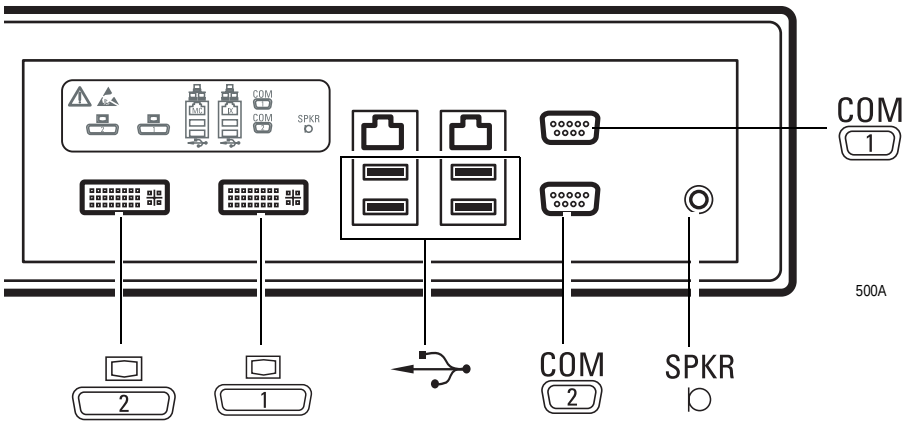
This assembly is static sensitive and should be handled using precautions to prevent electrostatic discharge damage.

Mount the equipment

The CIC Pro center may be physically mounted using one of the following strategies:

- Desktop: The CIC Pro center may be placed on a desktop, under the monitor stand/base, or on a shelf or floor without the use of any mounting hardware.
- Wall mounting: The CIC Pro center may be physically mounted to a wall or the bottom side of a desk or shelf using standard GCX mounting hardware.
- Foot stand: The CIC Pro center may be placed in a footstand and positioned on a desktop or floor.

Connect the cables and peripheral devices



Keyboard and Mouse

- Insert the keyboard and mouse cables into any available USB port located on the back of the CIC Pro center.

NOTE

If you connect more than one mouse to a configured mouse group, always position the additional mice on a flat surface. Otherwise erratic mouse movements and behaviors may result.

External speakers

In addition to two internal speakers, the CIC Pro center is equipped with an 1/8” external speaker connection port.

WARNING

CIC Pro center audible alarms will not sound for patients with bedside monitoring devices configured to “Operating Room” mode.

NOTE

External speakers are connected during normal operation. An alert message

displays when no external speaker connection is present. This is true even if the CIC Pro center is used as a mirror CIC Pro center and its audible alarm volume is set to ***OFF***.

1. Connect the external speaker cable into the SPKR speaker port located on the back of the CIC Pro center.
2. Insert the speaker power cable into an electrical power outlet.

Displays

Complete the following procedures to connect up to two displays to the CIC Pro center.

Connecting a primary display

The primary display can be a non-touchscreen or touchscreen display.

NOTE

To prevent accidental disconnection and loss of display screen information, always firmly tighten the DVI connector screws into the DVI connector port.

1. To connect a non-touchscreen display, complete the following steps:
   a. Insert the single display monitor DVI cable into the 1 primary video DVI port located on the back of the CIC Pro center.
   b. Insert the display power cable into an appropriate electrical power outlet.
2. To connect a touchscreen display, complete the following steps:
   a. Insert the touchscreen monitor DVI cable into the 1 primary video DVI port located on the back of the CIC Pro center.
   b. Insert the touchscreen monitor cable into the USB port located on the back of the CIC Pro center.
   c. Insert the display power cable into an appropriate electrical power outlet.

Preconditions for installing and configuring the secondary display

When installing and configuring a secondary display to the CIC Pro center, use the following process (in the order presented) to ensure proper operation:

- Complete the physical installation of all the equipment, except the secondary display.
- Activate all the licenses purchased for this CIC Pro center, including the following dual display (secondary display) licenses:
  - ***LVSL*** or the ***LVSM*** license.
  - ***DDIS*** license.
  - Shut down and turn off the power to the CIC Pro center and the primary display.
- Connect the secondary display's video and power cables.
- Turn on the power and restart the CIC Pro center, primary display, and the

secondary display. The secondary display screen should be illuminated and appear grey in color.

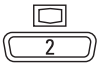
Connecting a secondary display

NOTE

- The primary and secondary displays can both be non-touchscreen or touchscreen displays or one of each.
- The use of USB video cables are recommended when using touchscreen displays.
- The video connection supports DVI-A analog/digital connections. Analog VGA monitors require either a VGA to DVI-A connection cable, or a VGA to DVI-A plug adapter.
- When connecting a second display to a CIC Pro center that is currently in use, always shut down the CIC Pro center before connecting the secondary display's video cable. See "Safe shutdown or restart procedure" on page 7-12.
- To prevent accidental disconnection and loss of display screen information, always firmly tighten the DVI connector screws into the DVI connector port.

Complete the following procedure to connect a secondary display:

1. Complete the "Preconditions for installing and configuring the secondary display" on page 3-10.
2. To connect a non-touchscreen secondary display, complete the following steps:
   a. Insert the primary display monitor data cable into the

primary DVI video port located on the back of the CIC Pro center. Be sure to firmly screw in the DVI connector into the connector port.
   b. Insert the display power cable into an appropriate electrical power outlet.
3. To connect a touchscreen secondary display, complete the following steps:
   a. Insert the secondary touchscreen monitor video cable into the 

secondary video port located on the back of the CIC Pro center. Be sure to firmly screw in the DVI connector into the connector port.
   b. Insert the touchscreen monitor data cable into the USB port located on the back of the CIC Pro center.
   c. Insert the display power cable into an appropriate electrical power outlet.

Digital writer

1. Insert the PRN 50-M data cable with adapter into the

port located on the port back of the CIC Pro center.

   NOTE

   The PRN 50-M must use software V2B or later to operate properly with the CIC Pro center and telemetry systems.

2. Load the printer with paper. See the "CIC Pro™ Clinical Information Center Operator's Manual" for instructions.
3. Insert the digital writer power cable into an appropriate electrical power outlet.

Network laser printer

Complete the following procedure to connect a network laser printer to the Unity Network IX network:

1. Connect the laser printer Ethernet cable to the Unity Network IX network.
2. Insert the laser printer power cable into an appropriate electrical power outlet.
3. Turn on the power to the printer.

Unity Network: do not connect the Unity Network IX or Unity Network MC cables

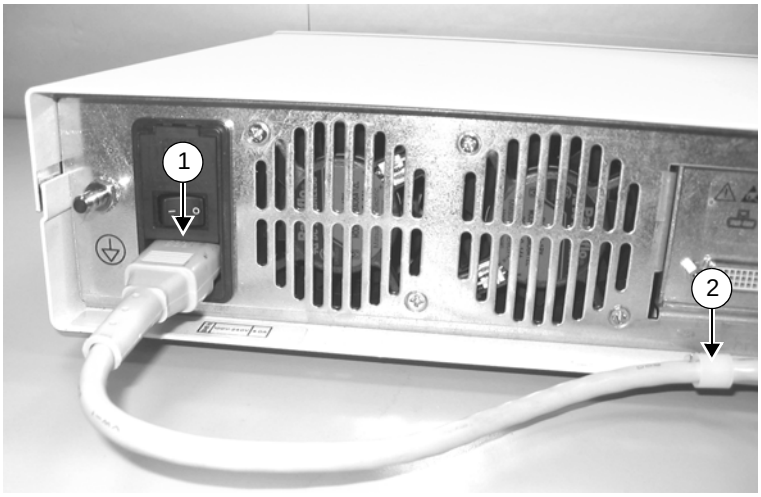
CAUTION
Perform "Set the IP address" on page 5-26 *before* connecting to the Unity Network IX or MC networks.

Do not adjust time/date settings while connected to the network. Changes to the time or date data affects all units on the network. This can result in other monitors altering the time and date parameter of some patient data.

- Do not insert the Unity Network IX cable or the Unity Network MC cable into the CIC Pro center at this time. You will complete this connection task when you "Set the IP address" on page 5-26.

Power cable

1. Insert the power cable into the power outlet on the back of the CIC Pro center.



2. Install the provided cable clamp around the power cable.

3. Tighten the cable clamp screw to secure the clamp to the chassis.
4. Insert the power cable into an un-interruptible power supply or into an electrical power outlet.

Turn on the power

Turn on the power by pressing the power switch located on the back of the CIC Pro center and on the back of the display monitors.

A green power indicator illuminates when the power is turned on. After approximately 30 seconds, the multi-patient viewer should display.

Configure the CIC Pro center

After installing the equipment and turning on the power, you must now configure the standard and specialized functions of CIC Pro center. See Chapter 5, “Configuration” .

4 Service interfaces

Service interfaces

Service interfaces provide several advanced and specialized functions for configuring, troubleshooting, and performing checkout procedures on the CIC Pro center.

WARNING
CIC Pro center service interfaces are intended for use *only* by properly trained, qualified personnel. Do *not* "experiment" with the service utilities, or use them in any way other than shown in this manual. Consequences of misuse include loss of patient data, corruption of CIC Pro center or operating system software, or disruption of the entire Unity Network MC network.

The CIC Pro center provides multiple software interfaces for performing configuration, checkout, and troubleshooting procedures. These interfaces include:

- Administrator mode
- Service mode
- Webmin browser (via local or remote access)
- ***Service Tools*** utilities
- Command-line utilities

Service interface usernames and passwords

The following table lists the usernames and passwords associated with CIC Pro center service interfaces.

CIC Pro center service interface usernames and passwords				
Service interface	User name	Password	Logon procedure	Function
Operating system log-ons				
Administrator	administrator	admin1,3,5,7	See "Log on to the Administrator mode" on page 4-4.	Access the following CIC Pro center administrator-level applications: ■ *Touchware* and ELO touch screen calibration application ■ *SVOffline* Service Tools application ■ *On-screen keyboard application* ■ *Acrobat Reader* ■ *Internet Explorer* ■ Windows desktop
Clinical application mode log-ons				
Service mode	Not applicable	mms_cic	See "Log on to the Service mode" on page 4-5.	Configure CIC Pro center clinical application, telemetry, and care unit settings.

CIC Pro center service interface usernames and passwords				
Service interface	User name	Password	Logon procedure	Function
Command-line mode	Not applicable	mms_com	See "Log on to the command-line utility" on page 4-17.	■ Configure CIC Pro center system settings. ■ Launch other system applications.
Network-based service tool log-ons				
Webmin	biomed	Change Me[1]	■ See "Log on to the local Webmin service interface" on page 4-6. ■ See "Log on to the remote Webmin service interface" on page 4-6	■ Display device information for the CIC Pro center and other peripheral devices. ■ Configure system and network settings for the CIC Pro center. ■ Diagnose device and system problems.
Screen-sharing (VNC)	Not applicable	prism1,3,5,7	See "Log on to the screen-sharing mode (VNC)" on page 4-5	Troubleshooting. Limit to one simultaneous connection only.
Service Tool utilities	admin	tango1,3,5,7	See "Log on to Service Tools" on page 4-12.	View device or system information, verify proper operation, and troubleshoot specific functions of the CIC Pro center.

1. The password for the biomed log-on should be changed from the default at the first log on.

System user modes

The following system user modes provide CIC Pro center software access at the operating system level. Each log-on provides a different level of accessibility at startup. Follow these steps to log on as appropriate.

> **CAUTION**
> If the beds admitted at this CIC Pro center are not transferred to a different monitoring station, they are unmonitored while this CIC Pro center is shut down. Beds admitted on this CIC Pro center display ***NO COMM*** at other locations if they are not admitted elsewhere.

To shut down the CIC Pro center application and log on as a different user:

1. From the multi-patient viewer, click ***Setup CIC***.
2. Click the ***Service Password*** tab.
3. Type **mms_com** as the password and press **Enter**. The Windows command window displays.
4. At the Windows command line prompt, type **stop** and press **Enter**.
5. From the Windows taskbar, click ***Start*** > ***Shut Down and Log off as CIC*** and press **Enter**.
6. Hold down the *left* **Shift** key and click ***Yes***. Continue holding down the left **Shift** key until the password prompt displays.

7. Choose from the following log-ons and continue as instructed.

Log on to the Administrator mode

Complete the following procedure to log on to the CIC Pro center in Administrator mode:

Shut down and log on as a different user

1. From the multi-patient viewer, click ***Setup CIC***
2. Click the ***Service Password*** tab.
3. Type **mms_com** as the password and press **Enter**.
4. At the Windows command line prompt, type **stop** and press **Enter**.
5. From the Windows taskbar, click ***Start*** > ***Shutdown***.
6. Choose ***Log off as CIC***.
7. Hold down the *left* **Shift** key and click ***OK***. Continue holding down the left **Shift** key until the password prompt displays.

Enter the Administrator username and password

1. Next to ***Username,*** type ***administrator*** and press the **Tab** key.
2. Next to ***Password,*** type ***admin1,3,5,7*** and press **Enter**.

To return to the run-time CIC Pro center clinical application mode

1. From the Windows taskbar, click ***Start*** > ***Shutdown***.
2. Choose ***Log off as Administrator*** and press **Enter**. The CIC Pro center automatically reboots and begins running the CIC Pro center clinical application.

Log on to the run-time CIC Pro center clinical application mode

The run-time mode refers to the running the CIC Pro center's clinical application software.

Display the Service Password window

1. From the multi-patient viewer, click ***Setup CIC***.
2. Click the ***Service Password*** tab.

Enter the Run-time mode password

1. Next to ***Password,*** type **mms_cic** and press **Enter**.
2. Next to ***User name***, type **cic** and press the **Tab** key.
3. Next to ***Password,*** type **cic** and press **Enter**. The CIC Pro center reboots and displays the multi-patient viewer window.

Log on to the Service mode

Display the Service Password window

1. From the multi-patient viewer, click ***Setup CIC***.
2. Click the ***Service Password*** tab.

Enter the Service mode password

- Next to ***Password,*** type **mms_cic** and press **Enter**.

Log on to the screen-sharing mode (VNC)

1. Install the Ultra VNC client distributed via the CIC Pro center service tools CD.
2. Navigate to the location where you installed UltraVNC Viewer and select ***Run UltraVNC Viewer (Listen Mode)***. The typical installation path on Windows XP is: ***All Programs*** > ***UltraVNC*** > ***UltraVNC Viewer*** > ***Run UltraVNC Viewer (Listen Mode)***.
3. Enter the Unity IX IP Address of the CIC Pro center in the ***VNC Server*** field and click ***Connect***.

Do NOT change any of the default settings.

NOTE

A CIC Pro center v5 screen can be remotely viewed and you cannot take control of the CIC Pro center you have connected.

Always limit to only one simultaneous connection.

Webmin service interface

Webmin is an internet-based web application used to configure, troubleshoot, and perform checkout procedures.

Log on to the Webmin service interface

You can access the Webmin service interface locally from the CIC Pro center, or remotely from a service laptop connected to the Unity Network IX network.

Log on to the local Webmin service interface

Complete the following procedure to log on to the Webmin service interface using the CIC Pro center's ***Browser*** function.

1. From the multi-patient viewer, click ***Browser***.
2. Depending upon browser configuration, click on either the *Favorites* menu or the (Favorites) button.
3. Click *LocalWebmin*.
4. "Enter the Webmin password" on page 4-7.

Log on to the remote Webmin service interface

Complete the following procedures to log on to the Webmin service interface using a remote service laptop connected to the Unity Network IX network.

Intranet domain configuration

The intranet computer (usually an FE laptop) must be TCP/IP configured for contacting the CIC Pro center before you can connect to Webmin:

- The intranet computer IP address scheme must be the same as the CIC Pro center.
- Optional subnet mask and default gateway settings on the intranet computer must match the CIC Pro center.

If necessary, refer to the CIC Pro center IP address labels or the site survey documentation for CIC Pro center intranet domain settings.

Intranet computer LAN configuration

It may be necessary to change the Internet Explorer LAN settings on the intranet computer to connect to Webmin.

Complete the following procedure to change the Internet Explorer LAN settings:

1. Start the Microsoft Internet Explorer application.
2. From the Internet Explorer application, click ***Tools*** > ***Internet Options***.
3. Click the ***Connections*** tab.
4. Click ***LAN Settings***.
5. Disable the ***Automatic Configuration*** and ***Proxy Server*** selections, as required.
6. Click ***OK***.

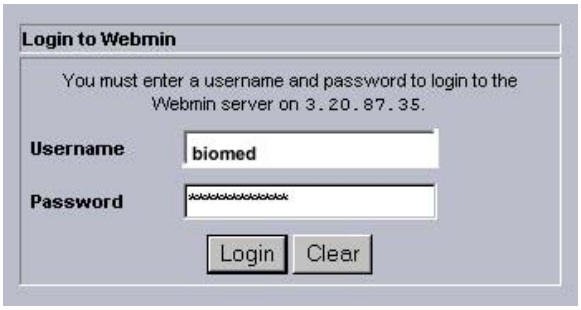
Connect to Webmin

1. Connect the intranet computer to a Unity Network IX network switch, or connect the intranet computer directly to the CIC Pro center Unity Network IX network connection port using a crossover cable.
2. Start the Microsoft Internet Explorer application.
3. In the ***Address*** field, type **https://[CIC Pro server IX IP address]:10000** and press **Enter**.

NOTE

[CIC Pro center server IP address] is the Unity Network IX network IP address for the CIC Pro center server.

Enter the Webmin password



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1. Next to ***Username,*** type **biomed** and press the **Tab** key.
2. Next to ***Password,*** type **Change Me** and press **Enter**.

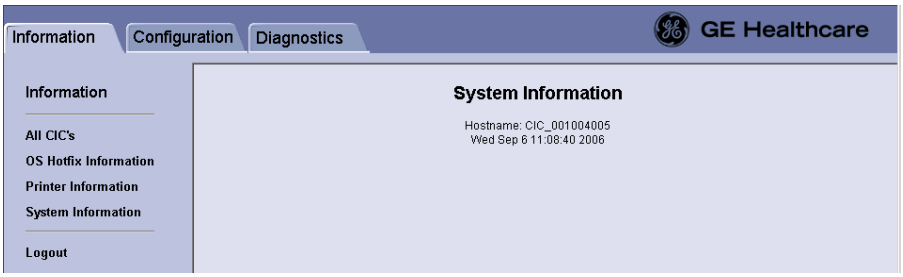
Navigating the Browser

The following table identifies the buttons you must click to navigate the ***Browser*** window:

Icon	Description
	Back navigation button. ■ Return to previous (cached) webpage.
	Forward navigation button. ■ Advance to next (cached) webpage.
	Stop button. ■ Stop the webpage loading process.
	Reload button. ■ Reload the current webpage.
	Home button. ■ Go to the home webpage. To set a home page, see "Browser Configuration" on page 5-40.
	Print button. ■ Print the current webpage.
	Internet properties button. ■ Configure the internet options for the CIC Pro center.
	Favorites button. ■ View the list of webpage shortcuts (favorites) displayed on the right side of the browser. To change the list of displayed favorites, see "Browser Configuration" on page 5-40.

Information tab

The ***Information*** tab displays information for the CIC Pro center, the network environment, and the other peripheral devices connected to the network.



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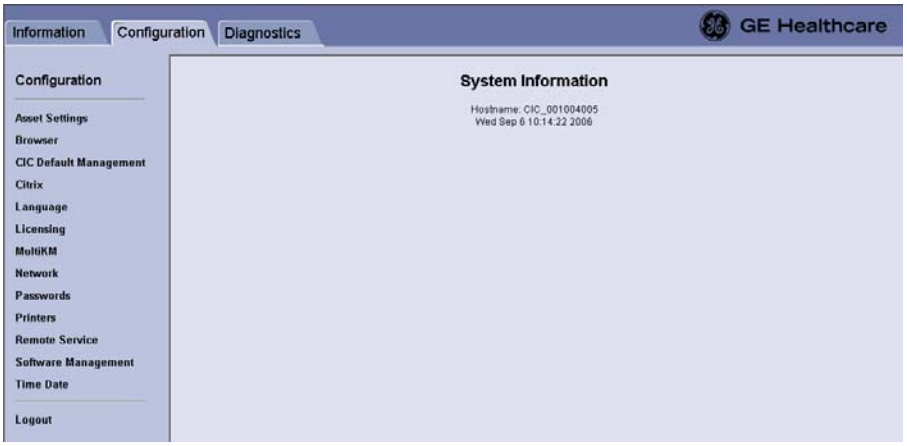
The following links are found on the ***Information*** tab.

Information links	
Option	Function
All CIC's	View a list of all licensed CIC Pro centers on the Unity Network MC network.
OS Hotfix Information	View a list of installed service packs.
Printer Information	View information about the installed digital writers and laser printers.
System Information	View information about the CIC Pro center hardware, operating system, and system.
Logout	Log off of the Webmin service interface and display the login window.

Configuration tab



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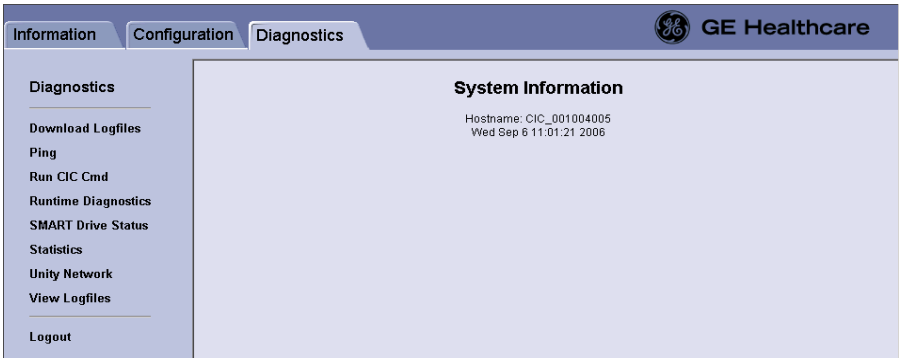
The following links are found on the ***Configuration*** tab.

Configuration links	
Option	Function
Asset Settings	■ Set the *Device Asset Number* to identify this device on the Unity Network. ■ View the *Device Serial Number*.
Browser	Configure the CIC Pro center to connect to an intranet browser and add or delete browser favorites. See "Browser Configuration" on page 5-40.
CIC Default Management	■ Backup and restore certain tools, data files, and list files. See "Backup or restore the CIC Pro center configuration" on page 7-13. ■ Backup and restore the following custom configuration settings from a remote location: - *FD Page*: Displayed waveforms and waveform display enhancements (e.g., *Zoom Window*). - *Graphic Trends*: Customized trend groups. - *Vital Signs*: Customized sort modes. - Menubar: Customized "*Save As Favorites*" for single or dual display (secondary display) configurations.
Citrix	Set up a Citrix client on the CIC Pro center. See "Setting up a Citrix client" on page 5-38.
Language	Set the language of the CIC Pro center application. See "Setting the CIC Pro center language" on page 5-78.
Licensing	Activate or remove licenses from the CIC Pro center. "Activate licenses (automatically) via a service laptop" on page 5-19.
MultiKM	Configure a group of centralized and configured CIC Pro centers to use one mouse and one keyboard in the group. See "Configuring a keyboard and mouse group" on page 5-95.
Network	Set the CIC Pro center IP addresses. See "Set the IP address" on page 5-26.
Passwords	Change the log-on password for the Webmin service interface.
Printers	■ Install or delete network laser printers. See "Installing or deleting a network laser printer" on page 5-29. ■ Designate where specific clinical data (e.g., alarm control, Event strip) will print.
Remote Service	Configure the CIC Pro center for remote service access. See "Configuring for Remote Service access" on page 5-35.

Configuration links	
Option	Function
Software Management	Upgrade the software and perform software maintenance.
Time Date	Set the time and date of the CIC Pro center.
Logout	Log off of the Webmin service interface and display the log-on window.

Diagnostics tab



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The following links are found on the ***Diagnostics*** tab.

Diagnostics links	
Option	Function
Download Logfiles	Download the CIC Pro center log files.
Ping	Test the CIC Pro center's connectivity with other network devices.
Run CIC Cmd	Run command-line functions to configure and troubleshoot the CIC Pro center. For a list of command-line functions, see "Command-line utilities" on page 4-17.
Runtime Diagnostics	Provide a wide variety of system runtime diagnostic utilities.
SMART Drive Status	View the read and write integrity of the storage media devices
Statistics	Provide utilities for viewing the operating system runtime and fan runtime statistics.
Unity Network	Search for devices running on the Unity Network.
View Logfiles	View the CIC Pro center log files.
Logout	Log off of the Webmin service interface and display the log-on window.

CIC Service Tool

The ***CIC Service Tool*** is available from the Windows desktop. It provides access to several service utilities and functions from one location.

NOTE

The Windows desktop is available only if using a full-access log-on when starting up the CIC Pro center. See "Log on to the Administrator mode" on page 4-4.

Log on to Service Tools

1. If necessary, shut down the CIC Pro center application and log on using a full-access log-on according to "Log on to the Administrator mode" on page 4-4.

CAUTION

If the beds admitted at this CIC Pro center are not transferred to a different monitoring station, they are unmonitored while this CIC Pro center is shut down. Beds admitted on this CIC Pro center display ***NO COMM*** at other locations if they are not admitted elsewhere.

2. From the Windows desktop, double-click the

(***SVOffline.exe*** icon).

   The ***Service Tool - Login*** window displays.

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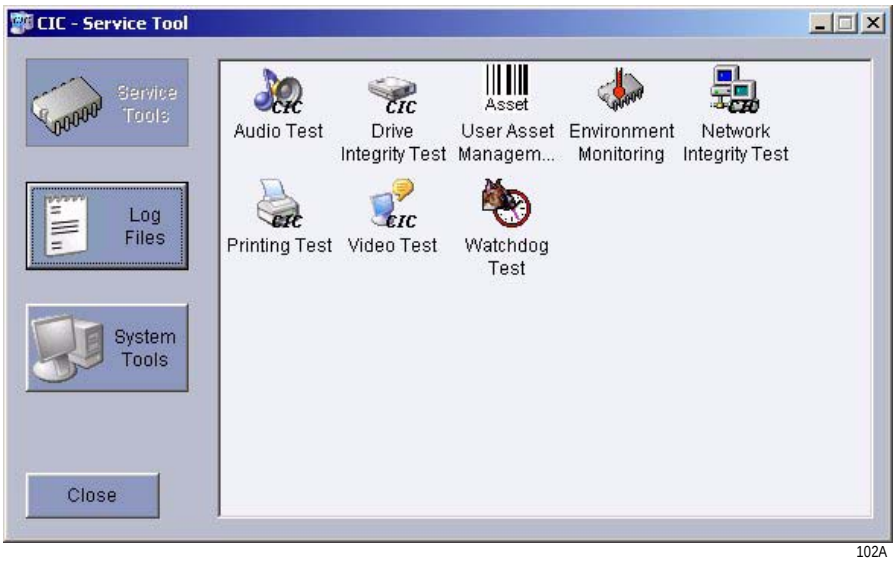
3. Next to ***User Name***, type ***admin*** and press the **tab** key.
4. Next to ***Password***, type **tango1,3,5,7** and press **Enter**. The ***CIC Service Tool*** window displays.

NOTE

To close the ***CIC - Service Tool*** window at any time, click the ***Close*** button at the bottom left corner of the window.

Service Tools

Click the ***Service Tools*** button. The ***Service Tools*** window display.



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NOTE

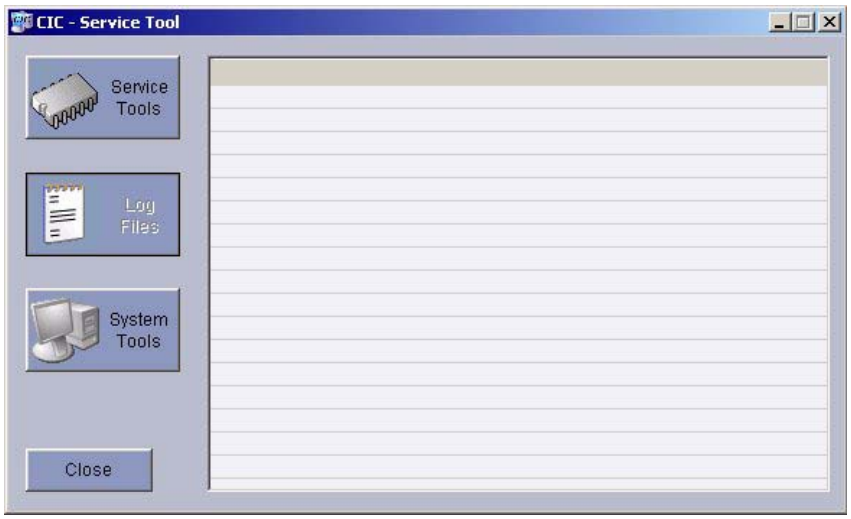
See "Checkout" on page 9-1 for procedures using the ***Service Tools***.

Service Tools window	
Option	Function
Audio Test	Test the CIC Pro center's audio equipment function. See "Check the operation of the audio components" on page 9-16.
Drive Integrity Test	Test the read and write integrity of CIC Pro center's electronic storage media. See "Check the read and write integrity of the hard and compact flash disk drives" on page 9-18.
User Asset Management	View the CIC Pro center's asset management information. See "User Asset Management" on page 9-21.
Environmental Monitoring	Test the status of the CIC Pro center's hardware environment, and environment-effecting components, such as voltage, fans, and temperature. See "Update the fields as needed and click Update." on page 9-21.
Network Integrity Test	Test the connectivity to network devices. Similar to the DOS *ping* utility. See "Check the network communication and the status of other networked devices" on page 9-24. **NOTE** The ApexPro Telemetry Server will not return a ping over the Unity Network IX network.
Printing Test	Test the CIC Pro center's printing function (printer installation, configuration, connectivity, etc.). See "Check the printing of a test page and the status of installed printers" on page 9-25.

Service Tools window	
Option	Function
Video Test	Test the CIC Pro center's video function. See "Check the video function and review the status of the video card and drivers" on page 9-28.
Watchdog Test	Test the CIC Pro center's watchdog countdown function. See "Check the operation of the Watchdog countdown function" on page 9-30.

Log Files

- Click the ***Log Files*** button. The CIC Pro center log files display.



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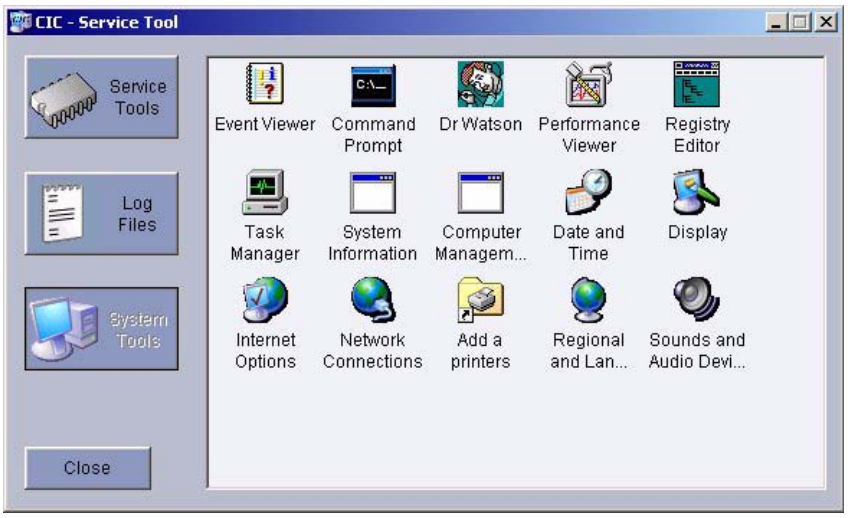
System Tools

1. Click the ***System Tools*** button. The ***System Tools*** options display.



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2. Double-click the icons to open the associated tool or utility. For more information about Windows tools, see the Windows documentation for the Windows operating system used on your CIC Pro center.

System Tools options

Option	Function
Event Viewer	Access the Windows *Event Viewer* tool.
Command Prompt	Access the Windows *Command Prompt* tool.
Dr. Watson	Access the Windows *Dr. Watson for Windows* utility to help detect, decode and log errors that are encountered while Windows or Windows programs are running.
Performance Viewer	Access the Windows *Performance* tool.
Registry Editor	Access the Windows *Registry Editor* tool.
Task Manager	Access the *Windows Task Manager* tool.
System Information	View system information.
Computer Management	Access the Windows *Computer Management* tool.
Date and Time	Access the Windows *Date and Time Properties* tool.
Display	Access the Windows *Display Properties* tool. See "The clinical application display colors are not correct" on page 7-4.
Internet Options	Access the Windows *Internet Properties* tool.
Network Connections	Access the Windows *Network Connections* tool.
Add a printer	Access the Windows *Add Printer Wizard* utility. See "Log on to the Webmin service interface" on page 5-29.

System Tools options	
Option	Function
Regional and Languages	Access the Windows *Regional and Language Options* tool. **NOTE** See "Setting the CIC Pro center language" on page 5-78 for the preferred procedure for changing languages.
Sounds and Audio Devices	Access the Windows *Sounds and Audio Devices Properties* tool.

Command-line utilities

WARNING
Command-line utilities are intended for use *only* by qualified personnel with training and experience with their use. Do *not* "experiment" with any commands other than those shown in this manual. The consequences of misuse include loss of patient data, corruption of the CIC Pro center or operating system software, or disruption of the entire Unity Network MC network.

The command-line utilities use the Windows DOS command prompt for configuring and troubleshooting the CIC Pro center software.

Log on to the command-line utility

To log on to the command-line utility via the multi-patient viewer, complete the following steps:

1. From the multi-patient viewer, click ***Setup CIC***.
2. Click the ***Service Password*** tab.
3. Next to ***Password***, type **mms_com** and press **Enter**. A DOS command window displays a ***c:***\ prompt.

NOTE
The following command-line functions can be run via Webmin, by completing the following steps:

a. "Log on to the Webmin service interface" on page 4-6.
b. Display the ***Diagnostics*** window.
c. From the ***Diagnostics*** window, click the ***Run CIC Cmd*** link. The ***CIC Cmd*** window displays a ***Command:*** prompt.
d. Type the function and click *Run Cmd*. The results will be displayed in a Webmin page.

The following tasks are performed on the CIC Pro center using command-line utilities:

- "Activating the NO COMM alarm" on page 5-68.
- "List the beds with full disclosure" on page 7-8.
- "Set the full disclosure modes" on page 7-10.
- "Ping the full disclosure server" on page 7-10.
- "List current system settings" on page 7-10.
- "Enable use of duplicate TTX numbers" on page 7-11.
- "Display waveform indicators" on page 7-11.
- "Require age selection for admit" on page 7-11.
- "Enable alarms" on page 7-11.

5 Configuration

Pre-configuration process

Pre-configuration requirements

All the CIC Pro centers connected to the Unity Network IX and MC networks must comply with the following configuration requirements:

- All devices must have the same time zone settings.
  - The ***Automatically adjust clock for daylight saving changes*** check box must remain *UNCHECKED* at all times.
- All MC IP addresses must be in the same IP scheme with the same subnet mask.
- All IX IP addresses must be in the same IP scheme with the same subnet mask.
- In the hierarchy of multiple compatible CIC Pro center hardware and software versions that co-exist, it is important to assign a set of the highest MC IP addresses to the highest software version. For example, if you are installing CIC v5.0.8 to an existing Unity network comprising of CIC v4.0.7 or greater, you must allocate a set of the highest MC IP addresses to all of the CIC Pro center's hardware running CIC v5.0.8.
- Use the Check Central utility to check for the following on all the CIC Pro centers on the network:
  - Time zone settings
  - Daylight saving time (DST) status
  - Unity Network IP address errors
  - Status of 4.1.1-1 patch application on CIC Pro center v4.1.1 (available only with the release of CIC Pro center v5.0.6 or greater)

NOTE
- The Check Central utility does *not* discover any version of Central Scope.
- The Check Central utility *will* discover CIC Pro center hardware running v1.5, but will not report its IP configuration information. This means that you must physically locate these devices if they exist on the network. Please read step 5 on page 5-5.
- The Check Central utility will *not* discover any non-CIC Pro center device on the network.

The Check Centrals utility is supplied on the CIC Pro center Service Tools CD as part of CIC Pro center v5.0.x or later Disaster Recovery Kit. You can run the utility directly from the CD on BCM and Nightshade platforms. However, this utility must be copied from the CD to an NTFS formatted USB memory stick for use on Bedrock platforms (v4.1.1 and greater).

Pre-configuration instructions

1. Read and understand the following Caution and communicate this information to the biomedical/clinical staff:

CAUTION
NETWORK DEVICE TIME SYNCHRONIZATION — When adding a new device (e.g., CIC Pro center) to the Unity Network, the existing devices on the Unity Network will synchronize to the

new device's time. To prevent potential time synchronization issues, you should set the new device's time to be as close as possible to the time (within one minute or less) used by the existing GE devices on the Unity Network.

2. Run the Check Central utility to verify that the time zone, IP addresses, and subnet mask are configured correctly. Follow the applicable steps for the software version of CIC Pro center you are running:

NOTE

Depending on the size of the network, the data retrieval process could take several minutes.

If the following CIC Pro centers are currently running on the Unity Network	Follow these steps
CIC Pro center software v4.0.x or v4.1.1 or greater	1. From the multi-patient viewer, click *Setup CIC*. 2. Click the *Service Password* tab. 3. In the *Password* field, type mms_com and press Enter. 4. Run the Unity Time Zone Discovery Tool/Check Central utility from the CD (BCM and Nightshade platforms) or a USB memory stick (Bedrock platform). 5. At the command prompt, navigate to the drive where the Check Central utility is located (e.g., E:\ or F:\) and type checkCentrals -tz.
CIC Pro center software v5.0.3	1. "Log on to the Webmin service interface" on page 4-6. 2. Click *Diagnostics* > *Run CIC Cmd*. 3. In the command text field, type checkCentrals -tz and click *Run Cmd*.
CIC Pro center software v5.0.6 and above	1. "Log on to the Webmin service interface" on page 4-6. 2. Click *Diagnostics* > *Run CIC Cmd*. 3. In the command text field, type checkCentrals -tz -presidpatch and click *Run Cmd*. (This will list the 4.1.1-1 patch application status on 4.1.1 units.)

The following is sample output from the Check Central utility:

NOTE

The information in the sample output represents the data format only. Therefore, do not attempt to analyze these IP addresses versus any errors reported.

```
                  --- Results for checkCentrals -tz ---
Gathering Central Station information currently on the Unity network...

.........UU..U..

Unit|Name   VersionMC IP Addr             IX IP Addr
---------- -----------------             --------
ANNEX|BCM   v4.0126.4.74.10               121.121.121.121
ANNEX|KAZ0  v5.0126.126.126.1568.20.94.58
ANNEX|KAZ1  v5.0126.126.126.1578.20.94.45
ANNEX|REN   v5.0126.1.4.44                7.20.93.33
ANNEX|SAF   v5.0126.1.4.5                 7.20.87.149
DCM|CIC2    v5.0126.1.99.121              1.20.101.188
DFR|CIC     v4.0126.1.244.167             192.168.1.10
GEHC|BA1    v5.0126.4.72.68               7.20.88.69
ICU|CIC     v4.1126.1.75.28               192.168.63.56
ICU|MAX     v5.0126.1.1.1                 192.168.1.1
ICU|SV5     v4.0126.21.65.103             ** Unknown **
ICUX|DFR    v3.0126.2.73.199              ** Unknown **

Assessing remote Central Stations for...
    - Integrity of the IX settings
    - DayLight Saving Setting
    - Time Zone Setting

X.F..XX.XXUU.XUFX

**********************************
***** Central Station Summary ******
**********************************
**** Network Based Errors ****
    'Unknown' IX IP Address Errors
    ----------------------
    1: ICU|SV5
    2: ICUX|DFR
    3: ORSOUTH|JJO
    'Unknown' Error- Address has not been configured
    Not able to perform any remote checks for these systems.

'No Path' to the IX IP Address Errors
    ----------------------
    1: ANNEX|BCM
    2: DCM|CIC2
    3: DFR|CIC
    4: ICU|CIC
    5: ICU|MAX
    6: ORNORTH|AGI
    'No Path' Error- Address that does not have a physical
    path (i.e. unplugged Network cable) or network settings
    are such that the address cannot be accessed (i.e. ping fails)
    Not able to perform any remote checks for these systems.
```

```
    'No Access' to the remote IX IP Address Errors
    ----------------------
    1: ANNEX|KAZ1
    'No Access' Error- Address is correctly configured but
    the central station is preventing access. This will most often
    occur because that device is behind a software firewall.
    Not able to perform any remote checks for these systems.

**********************************
     Remote Assessment Results
**********************************

    Daylight Saving Time (DTS) Failures
    -------------------------
    No 'DST' errors detected for the devices that could be contacted

    TimeZone Failures
    -----------------
    No 'TZ' errors detected for the devices that could be contacted

******************************
** Local System Information **
    TimeZone = Central Standard Time
    Automatic DTS = FALSE
******************************
--------------------------------------------------------------------------------
```

3. Analyze the Checkcentral output:
   a. Identify time zone or daylight saving time network errors:
      - Verify that all the CIC Pro centers configured on the Unity Network are listed.

        NOTE
        The target CIC Pro center running the Unity Time Zone Discovery Tool utility is the baseline device used for determining time zone or daylight saving time errors.

      - If errors are identified for either the time zone (TZ) or daylight saving time (DST) settings, correct the time zone settings as per instructions in "Setting the time zone" on page 5-86.

   b. Identify Unity Network IX and MC addressing scheme errors:
      - Verify the Unity Network IX and MC addressing schemes match for all the CIC Pro centers on the Unity Network.
      - If the addressing schemes do not match, complete Network IP address configuration for each CIC Pro center that requires IP address changes, as per instructions in the specific CIC Pro center service manual.
4. If there is any CIC Pro center hardware running v4.1.1 on the network, make sure that the 4.1.1-1 patch is applied.
5. Make sure that *only* the following compatible CIC Pro center versions co-exist in a given *care area*:
   - CIC v5.0.x
   - CIC v4.1.1-1

- CIC v4.0.7 or CIC v4.0.8

NOTE

CIC Pro center hardware running CIC v1.5, or any version of Central Scope, can exist independently in a separate *care area*, but not in the same care unit name with the software versions listed above.

6. If there is one or more Aware Gateway on the network, configure the Time Master settings at the Aware Gateway. See the latest Aware Gateway Service Manual for instructions. Consult Tech Support and hospital IT if any assistance is required.

7. Investigate if there is any unauthorized, non-GE medical equipment connected to the MC/IX network. If any unauthorized non-GE equipment is found or reported to be connected to the Unity Network, read and understand the following Warning and communicate this information to the hospital IT/ biomedical or clinical staff before proceeding further:

WARNING

During the timeframe that GE patient monitoring devices are connected to a non-validated network, customers must be aware that they are operating this system with increased risk, especially for devices that rely specifically on the network for real time transmission of alarms and other monitoring data. This increased risk comes about because GE has not been able to review/approve the proposed network design and/or commission the implemented network to ensure it meets required performance specifications.

The devices at increased risk include, but are not exclusive to, medical telemetry and all patient monitoring done from the CIC Pro central station.

Since monitoring data flows to and from central stations, telemetry servers, and other medical devices, the lack of a commissioned network can affect the performance of the overall system. Further, the lack of a validated network may result in limited technical support for troubleshooting product issues on products that rely on the Unity Network.

8. Investigate if there are any spare (un-connected) CIC Pro centers in the biomed shop and/or if there are any CIC Pro centers in the care area that are designed to work on customer demand (e.g., connected to the network, currently switched off and used only when needed). Before introducing such CIC Pro centers to the existing network, do the following:

   a. Make sure that those CIC Pro center hardware and software versions are compatible (as listed in step 5):

      - The time zone settings are the same.
        - The ***Automatically adjust clock for daylight saving changes*** check box must remain *UNCHECKED* at all times.
      - All MC IP addresses must be in the same IP scheme with the same subnet mask.
      - All IX IP addresses must be in the same IP scheme with the same subnet mask.

b. Inform the biomed about the following Caution:

CAUTION

NETWORK DEVICE TIME SYNCHRONIZATION —When adding a new device (e.g., CIC Pro center) to the Unity Network, the existing devices on the Unity Network will synchronize to the new device's time. To prevent potential time synchronization issues, you should set the new device's time to be as close as possible to the time (within one minute or less) used by the existing GE devices on the Unity Network.

9. Make CIC v5.0.8 (or the highest CIC Pro center software version) the Time Master.

   NOTE

   In the hierarchy of multiple compatible CIC Pro center hardware and software versions that co-exist, it is important to assign a set of the highest MC IP addresses to the highest software version. For example, if you are installing CIC v5.0.8 to an existing Unity network comprising of CIC v4.0.7 or greater, you must allocate a set of the highest MC IP addresses to all of the CIC Pro center's hardware running CIC v5.0.8.

10. Verify that there is *only one* Time Master on the network and it is compliant with step 9 by running the following command from any CIC Pro center currently on the network:

    lw -s "TIME MASTER" (lw<space>-s<space>"TIME<space>MASTER")

11. If you have not already connected the service PC to the network, "Prepare the service laptop" on page 5-19.

12. Proceed to "The configuration process" on page 5-8.

The configuration process

After completing the physical installation of the equipment, you can configure the standard and specialized functions of CIC Pro center. The following table identifies this configuration process.

CIC Pro center configuration process	
Process steps	Service interface tool
NOTE Disconnect the CIC Pro center from the Unity Network IX and MC networks before you begin the configuration process. **NOTE** If the System Resource Indicator turns yellow or red during configuration, refer to "System Resource Management" on page 6-3.	
1. Activating the software licenses. You must use one of the following activation methods: Automatic activation: ■ "Activate licenses (automatically) via a USB Memory stick" on page 5-13. ■ "Activate licenses (automatically) via a service laptop" on page 5-19. Manual activation: ■ "Activate licenses (manually) via the Activation Code Summary Sheet" on page 5-23.	 Webmin *Setup CIC* Webmin
2. "Setting the network IP address" on page 5-26.	Webmin
3. "Installing or deleting a network laser printer" on page 5-29.	
4. "Configuring for Remote Service access" on page 5-35.	
5. "Setting up a Citrix client" on page 5-38.	
6. "Browser Configuration" on page 5-40.	
7. "Configuring the clinical application, telemetry, and care unit settings" on page 5-46.	*Setup CIC*
8. "Activating the NO COMM alarm" on page 5-68.	*Setup CIC* > command line
9. "Command-line utilities" on page 4-17.	*Setup CIC* > command line
10. "Performing command-line utilities" on page 5-69.	*Setup CIC* > command line
11. "Setting Locked or Unlocked Beds" on page 5-71.	Right-click menu
12. "Configuring a secondary display" on page 5-72.	Administrator mode
13. "Setting the laser printer default paper size" on page 5-76.	Administrator mode > Webmin
14. "Setting the CIC Pro center language" on page 5-78.	Administrator mode > Webmin
15. "Setting the pressures unit-of-measure (Chinese only)" on page 5-55.	--
16. Calibrating the primary and secondary display. a. "Calibrate a touchscreen display" on page 5-82. b. "Calibrate a display" on page 5-81.	 Administrator mode *Setup CIC*

CIC Pro center configuration process	
Process steps	Service interface tool
17. "Setting the time zone" on page 5-86.	*Setup CIC* > command line and WIndows settings.
18. "Setting the time-of-day or the date" on page 5-88	Webmin
NOTE Re-connect the CIC Pro center to the Unity Network IX and MC networks.	--
19. "Configuring the print location of non-real-time patient data" on page 5-91	Webmin
20. "Configuring a keyboard and mouse group" on page 5-95.	Webmin
21. "Backing up the configuration settings" on page 5-108.	Webmin
22. "Completing the Checkout Procedures" on page 5-109.	--

Software licenses

Software licenses control all of the standard and specialized features available for each CIC Pro center. All licenses must be purchased and can only be activated on the CIC Pro center they were purchased for. Licenses and license activation codes are node locked to a specific CIC Pro center's unique serial number. Node locked licenses cannot be activated on a CIC Pro center when the CIC Pro center's serial number does not match the license activation code.

WARNING
UNTESTED SOFTWARE — Do not load any software other than that specified by GE onto the CIC Pro center. Installation of software not specified by GE may cause damage to the server or loss or corruption of data.

NOTE
For information about the clinical application functions of the CIC Pro center, see the "CIC Pro™ Clinical Information Center Operator's Manual."

Available licenses

The following table identifies the licenses available for the CIC Pro center:

CIC Pro center licenses		
Name	Option Code	Description
ADT - Basic Functionality	*ADTF*	■ Fast and accurate way to admit patients. ■ Search by patient last name, room, bed and medical record number or patient ID. ■ View a list of possible patient matches with their demographics. ■ Select a patient from the list instead of needing to enter characters with the keyboard. ■ Interface with Hospital Information Systems via the Aware Gateway to select a patient from a list.
ADT - Picklist	*ADTP*	
Dual Display (Secondary Display)	*DDIS*	■ View all of the single viewer applications in this second display. ■ Use the second display as a review display. ■ View two single applications at the top and bottom half of the screen. ■ View all applications (excluding Multi-view) in this second display. ■ Navigate between applications via enhanced software tools. ■ Access custom views of routine applications using a single mouse click.
Events - Directory	*EVDR*	Sort and count parameter events: ■ Sort parameter events by time and type. ■ View the total count of each event type in the patient's event directory. ■ Scan for Events without scrolling down a long list of individual events.
Events - Patient Data Server	*EVPD*	
Events - Review	*EVRW*	
Full Disclosure - 24 Hours Storage	*FD24*	Store 24 hours of full disclosure data. This data is viewable from the *FD Strip* and *FD Page* data review tools.

CIC Pro center licenses		
Name	Option Code	Description
Full Disclosure - 48 Hours Storage	*FD48*	Store 48 hours of full disclosure data. This data is viewable from the *FD Strip* and *FD Page* data review tools.
Full Disclosure - 72 Hours Storage	*FD72*	Store 72 hours of full disclosure data. This data is viewable from the *FD Strip* and *FD Page* data review tools.
Full Disclosure - Calipers	*FDCL*	Calculate a waveform interval or amplitude: ■ Calculate QTc measurement from the QT and R-R interval measurements. ■ Automatic calculation of QTc measurement when both QT and R-R measurements are recorded.
Full Disclosure - Page Review	*FDPR*	Display multiple waveforms of full disclosure data in a page view: ■ View up to 72 hours of full disclosure data as a half page or a full page view. ■ View multiple (up to 5) waveforms per line in 15-second, 30-second, or one minute per line increments. ■ Quick magnification of 10 seconds of full disclosure data. ■ View full disclosure data that is time-synched to *Events*, *Trends*, and the *FD Strip* view.
Full Disclosure - Strip Review	*FDST*	Display multiple waveforms of full disclosure data in a page view: ■ Scroll through and review 1, 24, 48 or 72 hours of full disclosure data.
Live View - Alarm Silence	*LVAS*	Silence alarms.
Live View - Basic View	*LVBV*	Display a patient bed in a single patient viewer.
Live View - Enterprise	*LVEN*	View patient beds outside of the care unit.
Live View - Graph All	*LVGA*	Print the parameter limits or the waveform data for all patients in the care unit.
Live View - MultiViewer	*LVMV*	Display a maximum of 16 patient beds (slots) in the multi-patient viewer.
LiveView - View Slot	*LVSL*	Display a patient bed (slot) in the multi-patient viewer. One license is required for each displayed bed. A maximum of 16 *LiveView - View Slot* licenses can be activated.
Live View - Mirror View Slot	*LVSM*	Provide a mirror image view of a primary CIC Pro center.
Setup - Remote Monitor	*MNSU*	Display the *Monitor Setup* single patient viewer menu option. This menu option provides the following real-time and stored patient data controls: *ECG*, *Graph Setup*, *Alarm Control*, *SPO2*, *Pressures*, and *Trends-Patient Data Server*.
Trends - Graphical	*TDGR*	View parameter numeric data over a selected period of time in bar graph format.
Trends - Patient Data Server	*TDPD*	Configure the CIC Pro center to retrieve patient trend data from an available Patient Data Server (PDS).
Trends - Real-Time	*TDRT*	Display parameter trends in a patient's live view display slot: ■ Quick, hands-free view of recent patient trends. ■ Display trend changes in the patient condition over one hour time period at 1-minute resolution for two parameters. ■ Configure the trended parameters per patient. ■ Turn on or turn off the trend window per patient. ■ Click on a trend of interest to display detailed graphic trends.

CIC Pro center licenses		
Name	Option Code	Description
Trends - Vital Signs	*TDVS*	View parameter numeric data values for monitored parameters over a selected period of time.
System Utilities - Citrix	*UTCX*	■ View Clinical Information System applications using a citrix client. ■ To leverage this capability, a Citrix server is required.
System Utilities - MultiKM	*UTMM*	Configure Keyboard and mouse groups: ■ Share one keyboard and one mouse between multiple configured and centralized CIC Pro centers. ■ Navigate and use multiple CIC Pro centers or displays at the same time.

CIC Pro center full disclosure license management setup

Every CIC Pro center with version 5.0.x software has the ability to store 16 beds of full disclosure (FD) data for one hour without a license. A CIC Pro center with the Full Disclosure option and version 5.0.x software has the ability to store up to 16 beds for 72 hours with the appropriate licenses and license settings.

When operating two CIC Pro centers within the same care unit, with one having the Full Disclosure option, and the other without: It is necessary to turn full disclosure ***OFF*** on the CIC Pro center without the full disclosure option, to prevent a conflict between the two different storage capacities of the CIC Pro centers.

To turn off full disclosure on the CIC Pro center without the full disclosure option, you must set the full disclosure ***License*** type to ***none***. See "Set the Full Disclosure Defaults" on page 5-60.

Activating software licenses

You can use one of three procedures to activate software licences on a CIC Pro center. The procedure you use is dependent upon the activation method you want to use (e.g., automatic or manual) and where the license activation codes reside (e.g., Memory stick, CD, floppy disk, hard drive, or printed on paper):

This section describes the procedures required to activate licenses during the installation of a new CIC Pro center or for activating licenses at a later date.

Automatic activation methods:

- "Activate licenses (automatically) via a USB Memory stick".
- "Activate licenses (automatically) via a service laptop".

Manual activation method:

- "Activate licenses (manually) via the Activation Code Summary Sheet".

CIC Pro center license activation requirements

Before attempting to activate licenses, be sure the CIC Pro center meets the following requirements:

- The CIC Pro center software V5.0.x is installed on the device you want to activate licenses on.
- The CIC Pro center V5.0.x software is running.
- The serial number of the CIC Pro center you want to activate licenses on matches the serial number used in the license activation codes. The serial number is displayed in the upper right-hand corner of the CIC Pro center application window. The serial number is also printed on the equipment label located on the back panel of the processor box. It can also be viewed via Webmin (***Configuration*** > ***Remote Service*** > ***Configuration***).

Activate licenses (automatically) via a USB Memory stick

Use this procedure when the license activation codes are available on a USB Memory stick.

This section describes the procedures required to activate licensing options during the installation of a new CIC Pro center or for activating licenses at a later date:

- "Gather the required tools and equipment".
- "If necessary, format a blank USB Memory stick and copy the SNO.txt file".
- "Insert the USB Memory stick containing the SNO.txt file into the CIC Pro center's USB port".
- "Display the CIC Setup window and menu".
- "Activate the licenses".
- "Compare the list of purchased licenses to those activated on the CIC Pro center".
- "Remove the USB Memory stick and store it in a safe place".
- Restart the CIC Pro center.

Gather the required tools and equipment

The following items are required to activate the licenses on this CIC Pro center using a USB Memory stick:

- NTFS formatted USB Memory stick containing the serialized option activation ***SNO.txt*** codes (generated by the option activation tool), matching the serial number of your CIC Pro center.
- (If necessary) Blank USB Memory stick and access to the ***SNO.txt*** codes (generated by the option activation tool).
- *"Activation Code Summary Sheet*" listing the serialized activation codes matching the serial number of your CIC Pro center.

  NOTE

  The "*Activation Code Summary Sheet*" was shipped electronically with your order. For another copy of the "*Activation Code Summary sheet*" or the USB Memory stick containing the license codes, contact Technical Support. For the US and Canada, call 800.558.7044. For outside the US and Canada, contact your local GE representative or distributor.

If necessary, format a blank USB Memory stick and copy the SNO.txt file

This section describes the procedures required to prepare a blank USB Memory stick for activating licenses on a CIC Pro center:

- "Verify the USB Memory stick uses the NTFS file format".
- "To format the USB Memory stick using a Windows XP laptop".
- "To format the USB Memory stick using a Windows 2000 laptop".
- "Copy the SNO.txt license file to the blank NTFS formatted USB Memory stick".

Verify the USB Memory stick uses the NTFS file format

1. Insert the blank USB Memory stick into one of the service laptop's USB ports.
2. Complete the following steps to verify the blank memory stick uses the NTFS file format:
   a. From the ***Windows Explorer***, right-click on the ***Removable Disk*** drive containing the USB Memory stick.
   b. From the displayed right-click menu, click ***Properties***.
   c. From the ***General*** tab, next to ***File System***, verify ***NTFS*** is displayed.
   d. If ***NTFS*** is not displayed, format the USB Memory stick according to the operating system of your service laptop.
   e. If ***NTFS*** is displayed, "Copy the SNO.txt license file to the blank NTFS formatted USB Memory stick" on page 5-15.

To format the USB Memory stick using a Windows XP laptop

Complete the following steps to apply the ***NTFS*** file format the USB Memory stick using a Windows XP service laptop:

1. From the ***Windows Explorer***, right-click on the ***Removable Disk*** drive containing the USB Memory stick.
2. From the displayed right-click menu, click ***Properties*** > ***Hardware.***
3. Choose the USB drive and click ***Properties*** > ***Policies***.
4. Next to ***Optimize for Performance*** option, click to fill the radio button.
5. Click ***OK*** to close the ***Policies*** window and click ***OK*** again to close the ***Properties*** window.
6. From the ***Windows Explorer*** window, right-click on the disk drive containing the USB Memory stick.
7. From the displayed right-click menu, click ***Format***. A ***Format*** window displays.
8. Under ***File System***, click the down arrow and choose ***NTFS*** from the displayed list.
9. Click ***Start***. A warning message displays.
10. Verify that this is the USB drive you want to format. Then, click ***OK*** to begin formatting.

To format the USB Memory stick using a Windows 2000 laptop

Complete the following steps to apply the NTFS file format to the USB Memory stick using a Windows 2000 service laptop:

1. From the ***Windows Explorer***, right-click on the ***Removable Disk*** drive containing the USB Memory stick.
2. From the displayed right-click menu, click ***Format***. A ***Format*** window displays.
3. Under ***File System***, click the down arrow and choose ***NTFS*** from the displayed list.
4. Click ***Start***. A warning message displays.
5. Verify that this is the USB drive you want to format. Then, click ***OK*** to begin formatting.

Copy the SNO.txt license file to the blank NTFS formatted USB Memory stick

Access the ***SNO.txt*** file specific to your CIC Pro center's serial number (available from the option activation tool).

Complete the following procedure to copy the ***SNO.txt*** file to the NTFS formatted USB memory stick:

1. Insert the blank, ***NTFS*** formatted USB memory stick into one of the laptop's USB ports.
2. Navigate to where you stored the ***SNO.txt*** file.
3. Open the ***SNO.txt*** file and confirm the ***SNO.txt*** file displays the CIC Pro center serial number that is identified in the "Gather the required tools and equipment" on page 5-14.

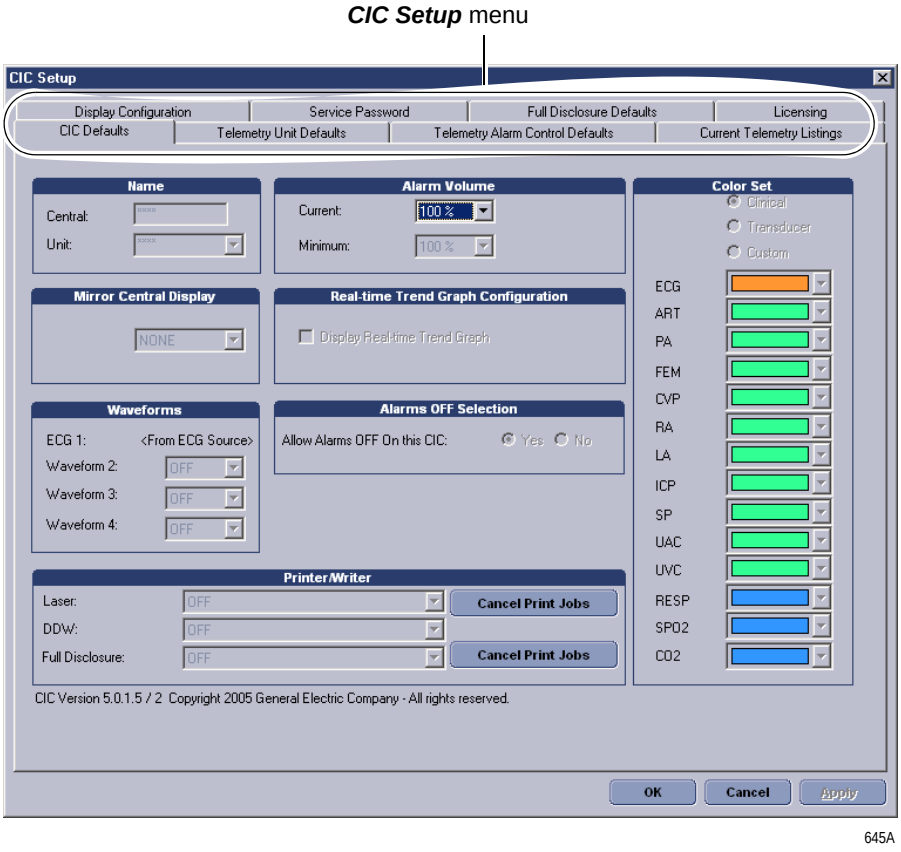
4. Use the Windows ***File Save As...*** function to save the ***SNO.txt*** file to the blank USB memory stick. The CIC Pro center's USB port is typically drive ***F:***\.
5. Write the serial number of the CIC Pro center on the outside of the USB Memory stick.

Insert the USB Memory stick containing the SNO.txt file into the CIC Pro center's USB port

1. Confirm the serial number on the memory stick matches the serial number of the CIC Pro center you are activating licenses on.
2. Insert the ***NTFS*** formatted memory stick into one of the USB ports on the back panel of the CIC Pro center.

Display the CIC Setup window and menu

From the multi-patient viewer, click ***Setup CIC*** to display the ***CIC Setup*** window and menu.



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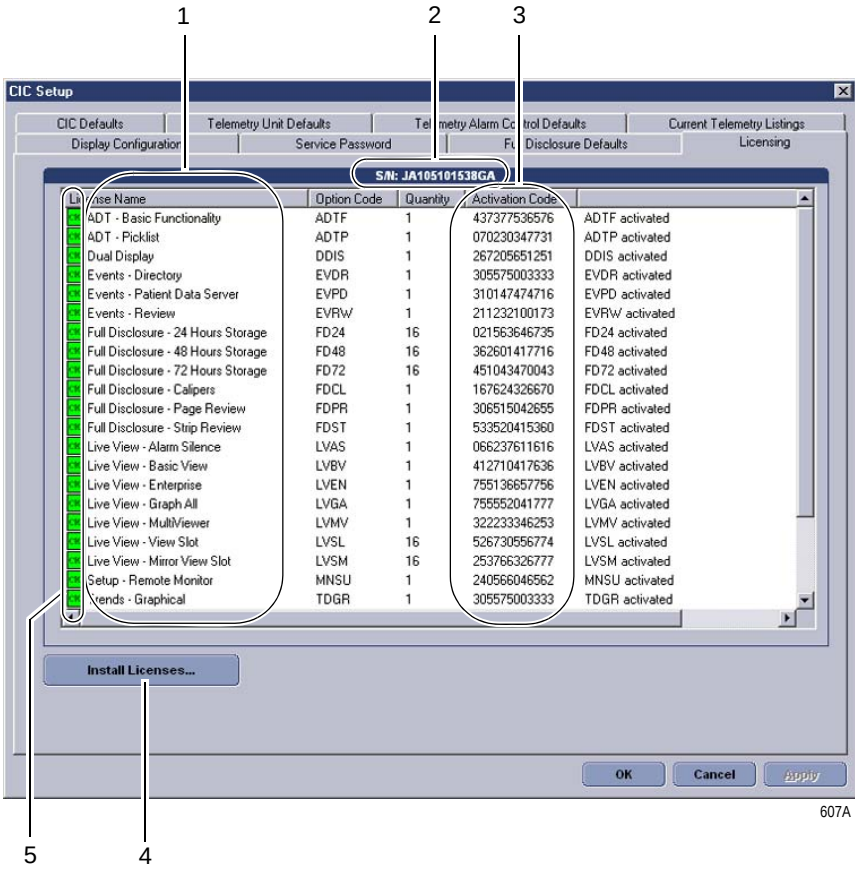
Display the Licensing window

- From the multi-patient viewer, click ***Setup CIC*** > ***Licensing***. The ***Licensing*** window displays.

  NOTE

  If no licenses have been installed on this CIC Pro center, no option

activation codes are listed and the activation icons appear red in color.


1
2
3
CIC Setup
CIC Defaults
Telemetry Unit Defaults
Current Telemetry Listings
Display Configuration
Service Password
Disclosure Defaults
Licensing
S/N: JA105101538GA
License Name
Option Code
Quantity
Activation Code
ADT - Basic Functionality ADTF 1 437377536576 ADTF activated
ADT - Picklist ADTP 1 070230347731 ADTP activated
Dual Display DDIS 1 267205651251 DDIS activated
Events - Directory EVDR 1 305575003333 EVDR activated
Events - Patient Data Server EVPD 1 310147474716 EVPD activated
Events - Review EVRW 1 211232100173 EVRW activated
Full Disclosure - 24 Hours Storage FD24 16 021563646735 FD24 activated
Full Disclosure - 48 Hours Storage FD48 16 362601417716 FD48 activated
Full Disclosure - 72 Hours Storage FD72 16 451043470043 FD72 activated
Full Disclosure - Calipers FDCL 1 167624326670 FDCL activated
Full Disclosure - Page Review FDPR 1 306515042655 FDPR activated
Full Disclosure - Strip Review FDST 1 533520415360 FDST activated
Live View - Alarm Silence LVAS 1 066237611616 LVAS activated
Live View - Basic View LVBV 1 412710417636 LVBV activated
Live View - Enterprise LVEN 1 755136657756 LVEN activated
Live View - Graph All LVGA 1 755552041777 LVGA activated
Live View - MultiViewer LVMV 1 322233346253 LVMV activated
Live View - View Slot LVSL 16 526730556774 LVSL activated
Live View - Mirror View Slot LVSM 16 253766326777 LVSM activated
Setup - Remote Monitor MNSU 1 240566046562 MNSU activated
Trends - Graphical TDGR 1 305575003333 TDGR activated
Install Licenses...
OK
Cancel
Apply
607A
5
4

	Item	Description
1	*License Name*	The licensing options available for activation.
2	*Serial number*	The serial number of this CIC Pro center.
3	*Activation Code*	The activation code for each license activated on this CIC Pro center. A license is activated when an activation code displays and the activation icon appears green in color.
4	*Install Licenses...* button	■ Activate purchased licenses.
5	Activation icons	The activation level of each license on this CIC Pro center: ■ Green = activated. ■ Red = not activated.

Activate the licenses

Complete the following procedure to automatically activate the licenses purchased for this CIC Pro center:

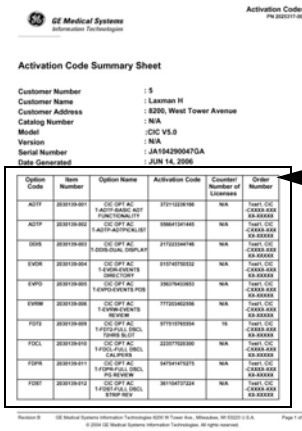
1. From the ***Licensing*** window, click the ***Install Licenses*** button.
2. Navigate to the directory on the USB Memory stick where the ***<Sno>.txt*** file is stored.
3. Click ***Open***. After a short delay, the following message displays, "***All available Licenses for this Serial Number Installed***".
4. Click ***OK***. The ***Licensing*** window on the CIC Pro center should now display the option activation codes for the activated licenses.

Compare the list of purchased licenses to those activated on the CIC Pro center

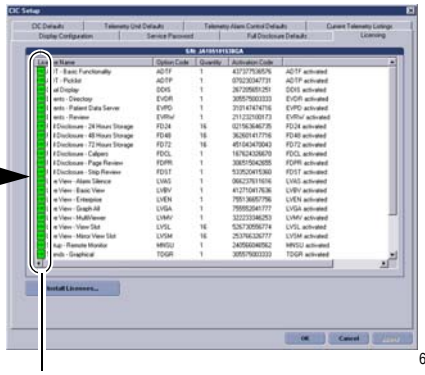
Complete the following procedure to confirm all purchased licenses for this CIC Pro center have been activated:

1. Get the "*Activation Code Summary Sheet"* that matches the serialized USB Memory stick and the serial number of your CIC Pro center.
2. Compare that all of the licences identified on the "*Activation Code Summary Sheet*" were activated on the CIC Pro center. A license is activated when an activation code displays and the activation icon appears green in color.

Activation code summary sheet


GE Medical Systems
Activation Codes
Activation Code Summary Sheet
Customer Number : 5
Customer Name : Laxman H
Customer Address : 8200, West Tower Avenue
Catalog Number : N/A
Model : CIC V5.0
Version : N/A
Serial Number : JA104290047GA
Date Generated : JUN 14, 2006

CIC Setup > ***Licensing*** window



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Green colored activation icons

Remove the USB Memory stick and store it in a safe place

1. From the Windows system tray, left-click the (***Unplug or Eject***) icon to safely stop running the USB Memory stick. The ***Safe Eject*** window displays.
2. Choose the drive running the USB Memory stick. Typically, this is ***Drive F:***\ on the CIC Pro center.
3. Click ***OK***.
4. Remove the USB Memory stick from the USB port.

5. Store the USB Memory stick and the "*Activation Code Summary Sheet*" in a safe and accessible location. In the event of a hard drive failure, the option activation codes on this USB Memory stick are required for disaster recovery.
6. Restart the CIC Pro center. You must restart before you can use any of the newly activated features. For more information, refer to "Safe shutdown or restart procedure" on page 7-12.

Activate licenses (automatically) via a service laptop

Use this procedure when the license activation codes are retrieved from a service laptop via a USB Memory stick, CD, floppy disk, or the service laptop's hard drive.

This section describes the procedures required to activate licensing options during the installation of a new CIC Pro center or for activating licenses at a later date:

- "Gather the required tools and equipment".
- "Prepare the CIC Pro center".
- "Prepare the service laptop".
- "Activate the licenses".
- "Restore the service laptop".
- "Store the media containing the SNO.txt file in a safe place".
- Restart the CIC Pro center.

Gather the required tools and equipment

The following tools and equipment are required:

- Service laptop (PC laptop or desktop computer) equipped with an Ethernet network card and running Windows® NT, 2000, or XP.
- Ethernet crossover cable.
- CD, floppy disk, or hard drive space to copy a text file.
- Access to the ***SNO.txt*** license activation file. This file may be stored on the NTFS-formatted USB Memory stick.

Prepare the CIC Pro center

- The CIC Pro center must be running.

Prepare the service laptop

This section describes the procedures required to prepare the service laptop for activating licenses on the CIC Pro center:

- "Connect the crossover cable to the CIC Pro center's Unity Network IX network port".
- "Record the CIC Pro center's IP addresses and configure the service laptop's IP addresses to match".

Connect the crossover cable to the CIC Pro center's Unity Network IX network port

- Connect the crossover cable from the service laptop's Ethernet port to the CIC Pro center's IX network port.

Record the CIC Pro center's IP addresses and configure the service laptop's IP addresses to match

NOTE

The network domain information (network IP addresses) of the two connected devices must match before you can interface between the service laptop and the CIC Pro center.

Complete the following procedure to first record the CIC Pro center's network IP addresses. Then, configure the service laptop's network IP addresses to match:

1. From the ***Network and Dial-Up Connections*** window, right-click the network port (used to connect to the CIC Pro center) and select ***Properties***.
2. Choose ***Internet Protocol (TCP/IP)*** and click ***Properties***.
3. If the IP address of the port is static (the ***Use the following IP address*** radio button is filled), record the IP address information for the service laptop in the spaces provided below.

   NOTE

   The service laptop may not have values for all settings listed.

Service laptop static IP address Information	
Static IP setting	Record the IP setting values below
IP Address	
Subnet Mask	
Default Gateway	

   NOTE

   The network adapter settings will be restored once the service laptop is disconnected from the CIC Pro center.

4. Next to ***Use the following IP address***, click to fill the radio button to select it.
5. Type **192.168.2.1** into the ***IP address*** field.
6. Type **255.255.255.0** into the ***Subnet mask*** field. Edit as needed to match the subnet mask of the IX IP address of the CIC Pro center.
7. Click ***OK***.
8. Click ***OK*** again to exit the ***Properties*** window.
9. If you are using a service laptop running a Windows NT operating system, restart the service laptop with the crossover cable connected to the CIC Pro center.

Activate the licenses

Log on to the Webmin service interface

If not already logged on to the Webmin service interface, see “Log on to the local Webmin service interface” on page 4-6 or “Log on to the remote Webmin service interface” on page 4-6.

Display the Licensing window

1. From the Webmin application window, click ***Configuration***. The ***Configuration*** window displays.

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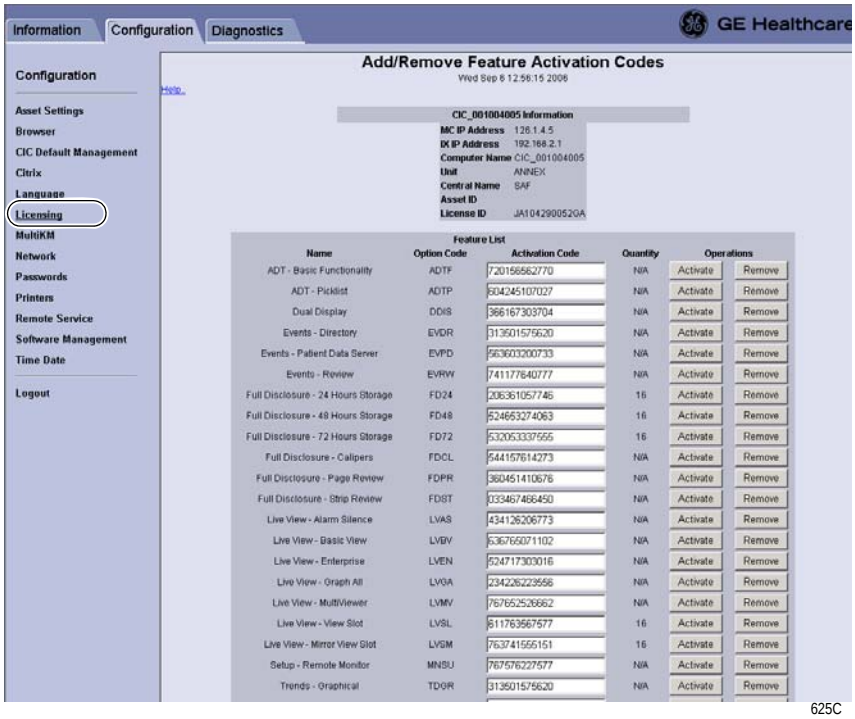
2. From the ***Configuration*** window, click the ***Licensing*** link. The ***Licensing*** window displays.


Information
Configuration
Diagnostics
GE Healthcare
Configuration
Asset Settings
Browser
CIC Default Management
Citrix
Language
Licensing
MultiKM
Network
Passwords
Printers
Remote Service
Software Management
Time Date
Logout
Add/Remove Feature Activation Codes
Wed Sep 6 12:56:15 2006
Help
CIC_001004005 Information
MC IP Address 126.1.4.5
IX IP Address 192.168.2.1
Computer Name CIC_001004005
Unit ANNEX
Central Name SAF
Asset ID
License ID JA104290052GA
Feature List
Name
Option Code
Activation Code
Quantity
Operations
ADT - Basic Functionality ADTF 720156562770 N/A Activate Remove
ADT - Picklist ADTP 604245107027 N/A Activate Remove
Dual Display DDIS 366167303704 N/A Activate Remove
Events - Directory EVDR 313501575620 N/A Activate Remove
Events - Patient Data Server EVPD 563603200733 N/A Activate Remove
Events - Review EVRW 741177640777 N/A Activate Remove
Full Disclosure - 24 Hours Storage FD24 206361057746 16 Activate Remove
Full Disclosure - 48 Hours Storage FD48 524653274063 16 Activate Remove
Full Disclosure - 72 Hours Storage FD72 532053337555 16 Activate Remove
Full Disclosure - Calipers FDCL 544157614273 N/A Activate Remove
Full Disclosure - Page Review FDPR 360451410676 N/A Activate Remove
Full Disclosure - Strip Review FDST 033467466450 N/A Activate Remove
Live View - Alarm Silence LVAS 434126206773 N/A Activate Remove
Live View - Basic View LVBV 636765071102 N/A Activate Remove
Live View - Enterprise LVEN 624717300016 N/A Activate Remove
Live View - Graph All LVGA 234226223556 N/A Activate Remove
Live View - MultiViewer LVMV 767652526662 N/A Activate Remove
Live View - View Slot LVSL 611763567577 16 Activate Remove
Live View - Mirror View Slot LVSM 763741555151 16 Activate Remove
Setup - Remote Monitor MNSU 767576227577 N/A Activate Remove
Trends - Graphical TDGR 313501575620 N/A Activate Remove

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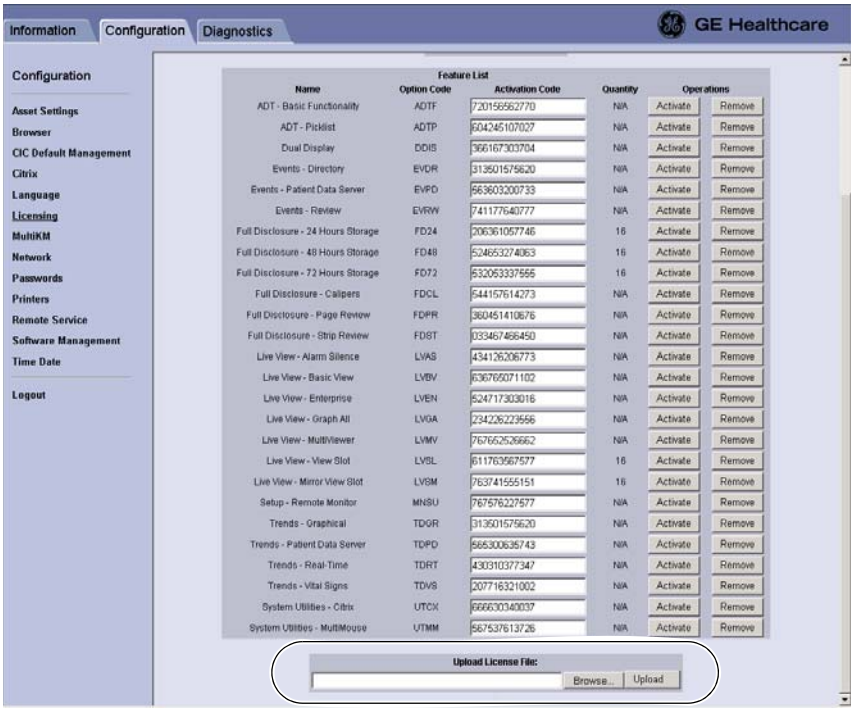
Navigate to the SNO.txt file and update the licenses

Complete the following procedure to navigate to where the license activation codes are stored and update the licenses of this CIC Pro center:

1. Use the vertical scroll bar to scroll down to the bottom of the ***Add/Remove Feature Activation Codes*** window.


Information
Configuration
Diagnostics
GE Healthcare
Configuration
Asset Settings
Browser
CIC Default Management
Citrix
Language
Licensing
MultiKM
Network
Passwords
Printers
Remote Service
Software Management
Time Date
Logout
Feature List
Name
Option Code
Activation Code
Quantity
Operations
ADT - Basic Functionality ADTF 720156562770 N/A Activate Remove
ADT - Picklist ADTP 604245107027 N/A Activate Remove
Dual Display DDIS 366167303704 N/A Activate Remove
Events - Directory EVDR 313501575620 N/A Activate Remove
Events - Patient Data Server EVPD 663603200733 N/A Activate Remove
Events - Review EVRW 741177640777 N/A Activate Remove
Full Disclosure - 24 Hours Storage FD24 206361057746 16 Activate Remove
Full Disclosure - 48 Hours Storage FD48 524653274063 16 Activate Remove
Full Disclosure - 72 Hours Storage FD72 532053337566 16 Activate Remove
Full Disclosure - Calipers FDCL 644157614273 N/A Activate Remove
Full Disclosure - Page Review FDPR 360451410676 N/A Activate Remove
Full Disclosure - Strip Review FDST 033467466450 N/A Activate Remove
Live View - Alarm Silence LVAS 434126206773 N/A Activate Remove
Live View - Basic View LVBV 636765071102 N/A Activate Remove
Live View - Enterprise LVEN 524717303016 N/A Activate Remove
Live View - Graph All LVGA 234226223566 N/A Activate Remove
Live View - MultiViewer LVMV 767662526662 N/A Activate Remove
Live View - View Slot LVSL 611763567577 16 Activate Remove
Live View - Mirror View Slot LVSM 763741555151 16 Activate Remove
Setup - Remote Monitor MNSU 767576227577 N/A Activate Remove
Trends - Graphical TDGR 313501575620 N/A Activate Remove
Trends - Patient Data Server TDPD 566300635743 N/A Activate Remove
Trends - Real-Time TDRT 430310377347 N/A Activate Remove
Trends - Vital Signs TDVS 207716321002 N/A Activate Remove
System Utilities - Citrix UTCX 666630340037 N/A Activate Remove
System Utilities - MultiMouse UTMM 567537613726 N/A Activate Remove
Upload License File:
Browse...
Upload

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2. Click ***Browse...*** and navigate to where you stored the ***SNO.txt*** license activation file on the service laptop.
3. Click ***Upload*** to load the licenses on this CIC Pro center.
4. Click ***Logout*** to close the Webmin service interface.
5. Restart the CIC Pro center.

Restore the service laptop

Disconnect the crossover cable from the CIC Pro center's Unity Network IX network port

- Disconnect the crossover cable from the service laptop's Ethernet port and the CIC Pro center's IX network port.

Store the media containing the SNO.txt file in a safe place

Store the media containing the ***SNO.txt*** file and the "*Activation Code Summary Sheet*" in a safe and accessible location. The option activation codes are required for disaster recovery.

Activate licenses (manually) via the Activation Code Summary Sheet

Use this procedure when the license activation codes reside on the printed "*Activation Code Summary Sheet*."

This section describes the procedures required to type the activation codes (printed on the "*Activation Code Summary Sheet"*) into the ***Activation Code*** data fields:

- "Gather the required tools".
- "Log on to the Webmin service interface".
- "Display the Licensing window".
- "Type the activation codes into the Activation Code data fields".
- Restart the CIC Pro center.

Gather the required tools

You must have the printed "*Activation Code Summary Sheet*" that matches the serial number of the CIC Pro center you are the activating the options on.

Log on to the Webmin service interface

If not already logged on to the Webmin service interface, see "Log on to the local Webmin service interface" on page 4-6 or "Log on to the remote Webmin service interface" on page 4-6.

Display the Licensing window

1. From the Webmin application window, click ***Configuration***. The ***Configuration*** window displays.

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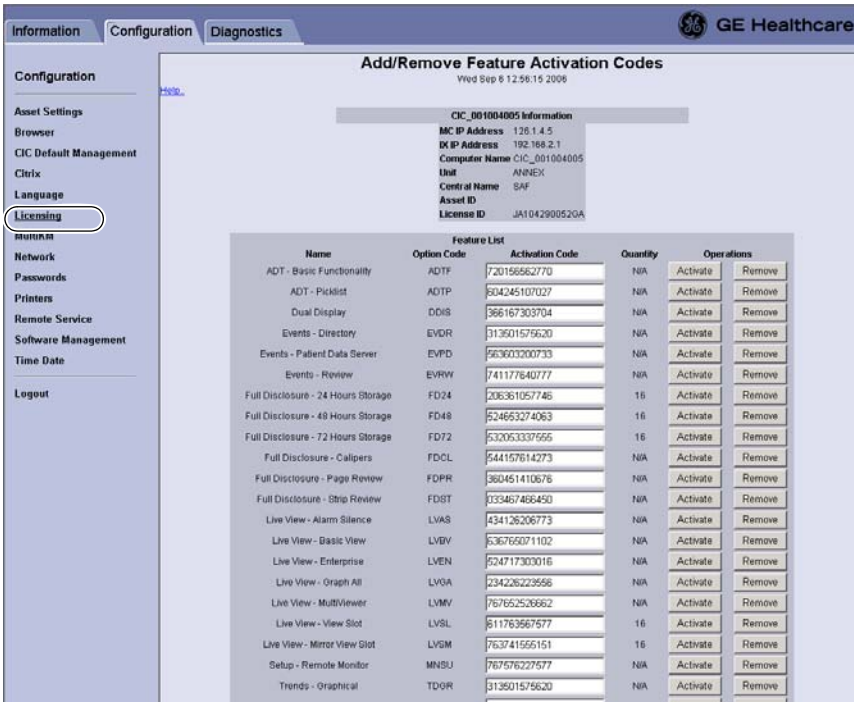
2. From the ***Configuration*** window, click the ***Licensing*** link. The ***Licensing*** window displays.


Information
Configuration
Diagnostics
GE Healthcare
Configuration
Asset Settings
Browser
CIC Default Management
Citrix
Language
Licensing
Network
Passwords
Printers
Remote Service
Software Management
Time Date
Logout
Add/Remove Feature Activation Codes
Wed Sep 6 12:56:15 2006
CIC_001004005 Information
MC IP Address 126.1.4.5
IX IP Address 192.168.2.1
Computer Name CIC_001004005
Unit ANNEX
Central Name SAF
Asset ID
License ID JA104290052GA
Feature List
Name
Option Code
Activation Code
Quantity
Operations
ADT - Basic Functionality ADTF 720156562770 N/A Activate Remove
ADT - Picklist ADTP 604245107027 N/A Activate Remove
Dual Display DDIS 366167303704 N/A Activate Remove
Events - Directory EVDR 313501575620 N/A Activate Remove
Events - Patient Data Server EVPD 563603200733 N/A Activate Remove
Events - Review EVRW 741177640777 N/A Activate Remove
Full Disclosure - 24 Hours Storage FD24 206361057746 16 Activate Remove
Full Disclosure - 48 Hours Storage FD48 524663274063 16 Activate Remove
Full Disclosure - 72 Hours Storage FD72 532053337655 16 Activate Remove
Full Disclosure - Calipers FDCL 544157614273 N/A Activate Remove
Full Disclosure - Page Review FDPR 360451410676 N/A Activate Remove
Full Disclosure - Strip Review FDST 033467466450 N/A Activate Remove
Live View - Alarm Silence LVAS 434126206773 N/A Activate Remove
Live View - Basic View LVBV 636765071102 N/A Activate Remove
Live View - Enterprise LVEN 524717303016 N/A Activate Remove
Live View - Graph All LV0A 234226223556 N/A Activate Remove
Live View - MultiViewer LVMV 767652526662 N/A Activate Remove
Live View - View Slot LVSL 611763567577 16 Activate Remove
Live View - Mirror View Slot LVSM 763741555151 16 Activate Remove
Setup - Remote Monitor MNSU 767676227577 N/A Activate Remove
Trends - Graphical TDGR 313501575620 N/A Activate Remove

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Type the activation codes into the Activation Code data fields

Complete the following procedure to type the activation codes for each purchased license:

1. Next to the license you want to activate, type the activation code into the ***Activation Code*** field. See the "*Activation Code Summary Sheet*".
2. Click ***Activate*** to activate the license on this CIC Pro center.

3. Repeat step 1 and step 2 until you have activated all of the purchased licenses.
4. Restart the CIC Pro center. For more information, refer to "Safe shutdown or restart procedure" on page 7-12.

To remove an activated license

- Next to the license you want to remove, click ***Remove***. The message, ***This option has been removed*** displays.

Store the Activation Code Summary Sheet in a safe place

Store the "*Activation Code Summary Sheet*" in a safe and accessible location. In the event of a hard drive failure, the option activation codes on this "*Activation Code Summary Sheet*" are required for disaster recovery.

Setting the network IP address

This section describes the procedures required to configure the CIC Pro center's IP address and computer name:

- "Get the site survey workbook for this care area"
- "Log on to the Webmin service interface" on page 5-26
- "Display the Configuration window"
- "Set the IP address"

Get the site survey workbook for this care area

You will need the site survey workbook in order to set the CIC Pro center's IP addresses required for your network domain.

Log on to the Webmin service interface

If not already logged on to the Webmin service interface, see "Log on to the local Webmin service interface" on page 4-6 or "Log on to the remote Webmin service interface" on page 4-6.

Display the Configuration window

- From the Webmin application window, click ***Configuration***. The ***Configuration*** window displays.

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Set the IP address

WARNING
Duplicate IP addresses will cause erratic system communication and data loss! Be extremely careful not to assign the same IP address to two different devices.

1. From the ***Configuration*** window, click the ***Network*** link. The ***Network*** window displays.

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2. Under ***Unity MC***, if the site uses a custom Unity Network MC network addressing scheme (e.g., not ***126.x.x.x*** scheme), change the Unity Network MC network IP address so that it is unique on the network.

   NOTE
   The default IP address settings are recommended. See the site survey workbook for the IP address values.

   NOTE
   Typically, the ***Unity MC*** > ***Subnet Mask*** setting should remain at the default setting ***255.0.0.0***. See the site survey workbook.

3. Under ***Unity IX,*** enter the ***IP Address***, ***Subnet Mask, and Default Gateway*** settings according to the values identified in the site survey workbook.

   NOTE
   Typically, the ***Unity IX*** > ***Subnet Mask*** setting should remain at ***255.255.255.0***. See the site survey workbook.

   NOTE
   A route must exist from the Unity IX network to other CIC Pro centers, Citrix servers, browser services, and the Internet for InSite 2.0 Digital Services.

   NOTE
   The Unity IX IP address must be open to the internet before the browser can access internet web addresses (external to the hospital network). Contact your hospital IT Administrator.

4. If the Unity Network IX network ***IP Address*** or ***Subnet Mask*** has been changed, replace the label on the CIC Pro center cover with a new label displaying the IP address and subnet mask value(s).

5. Under ***DNS Settings***, enter the ***Primary DNS*** and ***Secondary DNS*** settings according to the values identified in the site survey workbook.

   NOTE
   DNS addresses can be used for browser sources and for InSite 2.0 configuration only.

6. Click ***Save***.
7. Complete any other pending CIC Pro center configuration procedures, if required.
8. From the Windows taskbar, click ***Start*** > ***Shut Down*** > ***Restart*** and press **Enter**.

NOTE

You must restart the CIC Pro center for the new IP address settings to take effect.

Installing or deleting a network laser printer

This section describes the procedures required to install or delete a network laser printer:

- "Log on to the Webmin service interface" on page 5-29.
- "Display the Printers window" on page 5-30.
- "Install a network laser printer" on page 5-31.
- "Delete a laser printer" on page 5-32.

NOTE

The following installation procedure requires a Unity Network IX network connection. See "Setting the network IP address" on page 5-26.

NOTE

The following procedure only applies when the printer TCP/IP scheme follows Unity Network IX network IP addressing factory defaults (192.168.x.x), and the printer is physically located on the Unity Network IX network. When the printer uses a custom TCP/IP addressing scheme, refer to the site survey for resolving TCP/IP values.

Log on to the Webmin service interface

If not already logged on to the Webmin service interface, see "Log on to the local Webmin service interface" on page 4-6 or "Log on to the remote Webmin service interface" on page 4-6.

Display the Printers window

1. From the Webmin application window, click ***Configuration***. The ***Configuration*** window displays.

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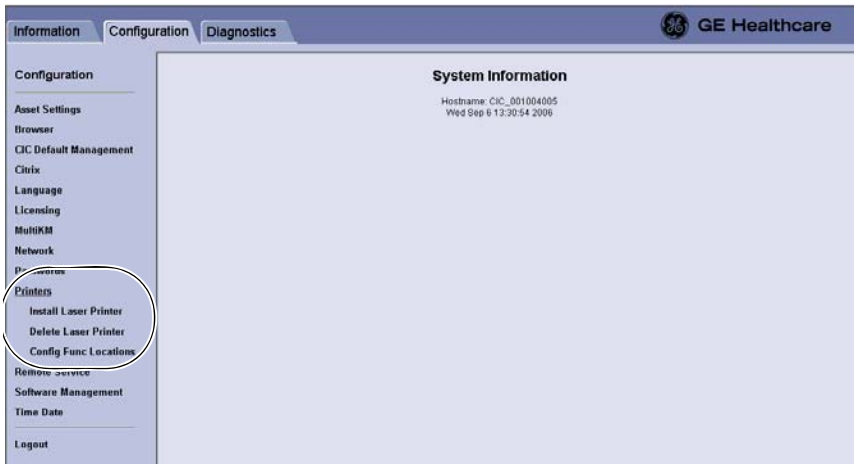
2. From the ***Configuration*** window, click the ***Printers*** link. The ***Printers*** window displays.



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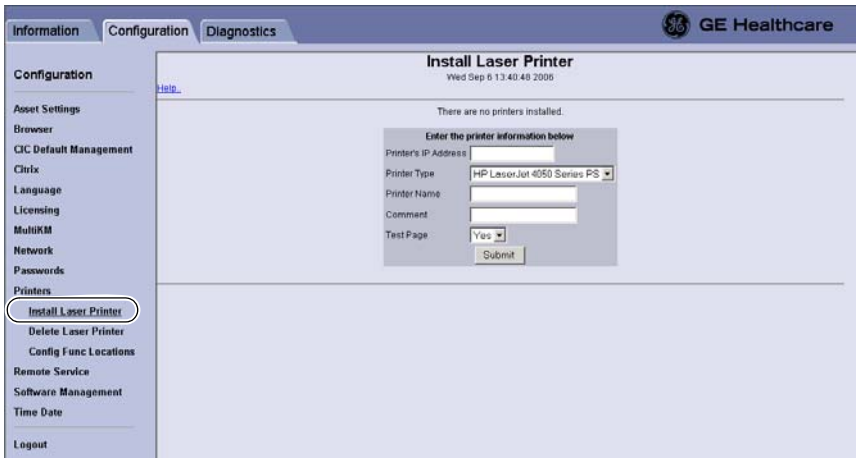
Install a network laser printer

1. With the laser printer physically connected to the Unity Network IX network, turn on the power to the laser printer.
2. Under the ***Printers*** link, click the ***Install Laser Printer*** link. The ***Install Laser Printer*** window displays.



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3. Type the IP address assigned to the printer (e.g., ***192.168.x.x***) into the ***Printer's IP Address*** field.

   NOTE

   If the addressing scheme has been changed from factory defaults, the assigned addresses must be tracked and maintained at the site. This includes printers. The above scheme only applies when the Unity Network IX network IP addressing has not changed from the factory defaults or when the printer is not connected to your hospital's network.

4. Click the down arrow next to ***Printer Type*** to display a list of supported printers. The supported printers include:

   - ***HP LaserJet 4050 Series PS***
   - ***HP LaserJet 4250 PS***
   - ***HP LaserJet 2430 PS***
   - ***HP LaserJet 2430 PS (USB)***
   - ***HP LaserJet 4100 Series PS***
   - ***HP LaserJet 4200 PS***
   - ***HP LaserJet 4000 Series PS***

   CAUTION

   Do NOT configure the CIC Pro center for the HP LaserJet 4300 Series PS driver. While the driver is supported, the printer is not.

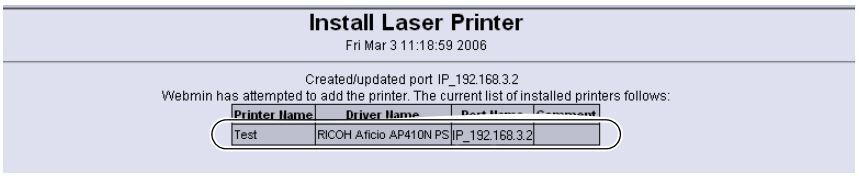
   Do NOT install HP LaserJet 2430 USB printers via this service interface. For HP LaserJet 2430 USB printer support, refer to "Installing or deleting a USB laser printer" on page 5-34.

5. If desired, type a name for the printer into the ***Printer Name*** field (29 character limitation).

   NOTE

   If a printer name isn't specified, the printer type will be used as the printer's name.

6. If desired, enter a comment about the printer into the ***Comment*** field. (29 character limitation).
7. Click the down arrow next to ***Test Page*** and choose ***Yes*** to print a test page. This step is strongly recommended.
8. Click ***Submit***. The installed printer displays in the printer list.



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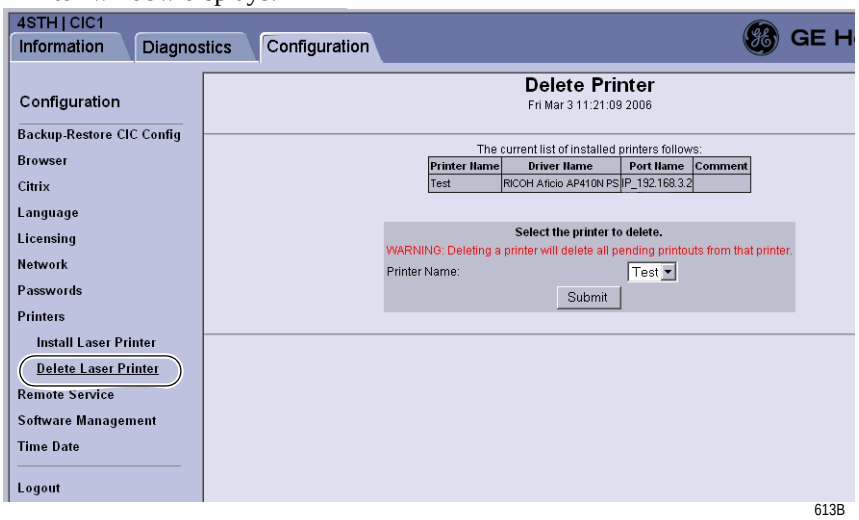
Delete a laser printer

Complete the following procedure to delete a network laser printer:

1. Under the ***Printers*** link, click the ***Delete Laser Printer*** link. The ***Delete Laser Printer*** window displays.



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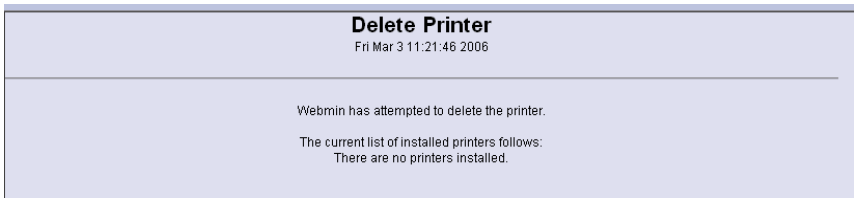
2. Under ***Select the printer to delete***, click the down arrow to display a list of printer names.
3. Choose the printer you want to delete from the displayed list.

4. Click ***Submit***. The printer is deleted from the printer list.


Delete Printer
Fri Mar 3 11:21:46 2006
Webmin has attempted to delete the printer.
The current list of installed printers follows:
There are no printers installed.

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Installing or deleting a USB laser printer

The CIC Pro center v5 only supports the HP LaserJet 2430 USB printer as a plug and play printer. This printer does not require any special installation. As long as the printer is connected to the CIC Pro center, it is readily available for configuration at the ***CIC Setup***.

Configuring for Remote Service access

The CIC Pro center is capable of remote service using InSite 2.0. Digital Services. See the site survey workbook for required configuration information.

This section describes the procedures required to view the ***Remote Service*** settings and to enable or disable the ***Remote Service*** ***Agent***:

- "Log on to the Webmin service interface".
- "Display the Remote Service window".

Log on to the Webmin service interface

If not already logged on to the Webmin service interface, see "Log on to the local Webmin service interface" on page 4-6 or "Log on to the remote Webmin service interface" on page 4-6.

Display the Remote Service window

1. From the Webmin application window, click ***Configuration***. The ***Configuration*** window displays.

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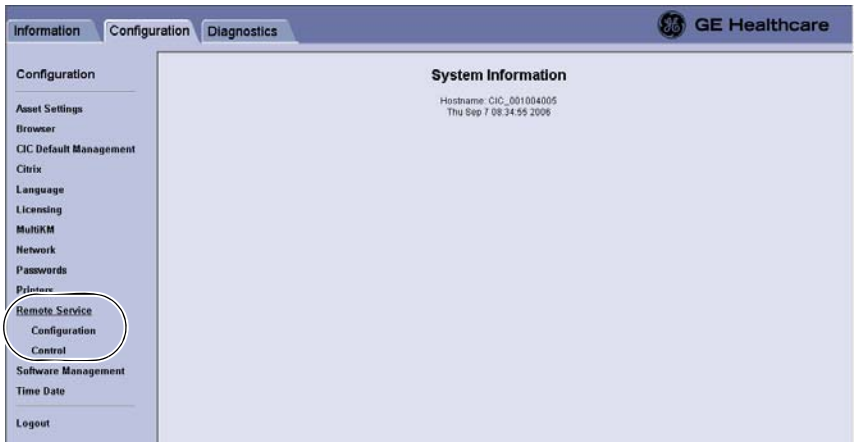
2. From the ***Configuration*** window, click the ***Remote Service*** link. The ***Remote Service*** links display.



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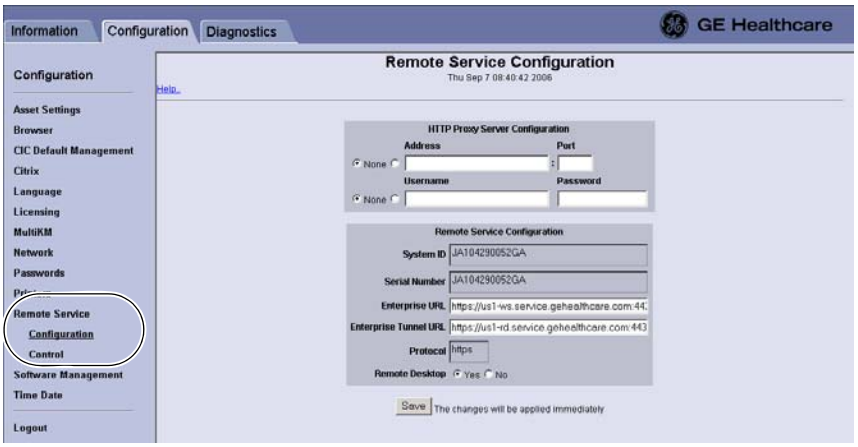
View the Remote Service > Configuration data

Complete the following procedure to view the ***Remote Service*** > ***Configuration*** data:

- Under ***Remote Service***, click the ***Configuration*** link. The ***Remote Service Configuration*** window displays.



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The following table summarizes the ***Remote Service Configuration*** data fields:

Remote Service Configuration settings		
Item	Description	Comments
HTTP Proxy Server Configuration		
Address *Port* *Username and Password* *Scheme*	■ If this site uses an HTTP proxy server, a specific site proxy server IP *Address* and *Port* number are required for the *Remote Service* communication to work. Otherwise, *None* is selected. ■ If the HTTP proxy server requires user authorization, a specific *Username*, *Password*, and authorization *Scheme* (e.g., *Basic*, *Digest*, or *NTLM*) is required. Otherwise, *None* is selected.	These values are determined during the site survey. See the site survey workbook.
Remote Service Configuration		
System ID	Identify the system to the GE backoffice servers.	These values are read-only and are unique.
Serial Number	Identify the unit and is determined at the time of manufacture.	

Remote Service Configuration settings		
Item	Description	Comments
Enterprise URL	Designate the address of the GE backoffice servers required to communicate with the *Remote Service Agent*.	This address should never be changed unless explicit instructions are given to do so.
Enterprise Tunnel URL	Designate the address of the GE backoffice servers required to communicate with the tunneling agent.	
Protocol	Designate the protocol required to communicate with the enterprise servers.	This field is read-only and cannot be changed.
Remote Desktop	Enable a remote screen-sharing for a GE Technical Support view of the two clinical displays for diagnosing problems with the CIC Pro center or Unity Network.	This is a view-only option. If *No* is selected, then GE Technical Support will not be able to view.

Enable or disable the Remote Service Agent

After a GE Field Engineer (FE) has configured your CIC Pro center for remote serviceability, this option must be enabled for use.

Complete the following procedure to enable or disable the ***Remote Service Agent***:

1. Under ***Remote Service***, click ***Control***. The ***Remote Service Controls*** window displays.

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2. Under ***Remote Service Controls***, complete one of the following tasks:
   - To enable the ***Remote Service Agent***, click ***Enable***.
   - To disable the ***Remote Service Agent***, click ***Disable***.

3. Click ***Save*** to save your changes.

Setting up a Citrix client

When your facility supports a Citrix server, you can set up a Citrix client on the CIC Pro center.

This sections describes the procedures required to set up a Citrix client:

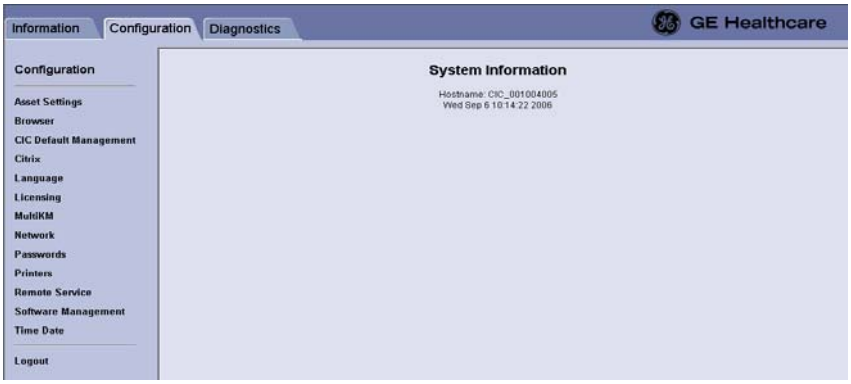
- "Log on to the Webmin service interface"
- "Display the Citrix window"
- "Enter the Citrix configuration information"

Log on to the Webmin service interface

If not already logged on to the Webmin service interface, see "Log on to the local Webmin service interface" on page 4-6 or "Log on to the remote Webmin service interface" on page 4-6.

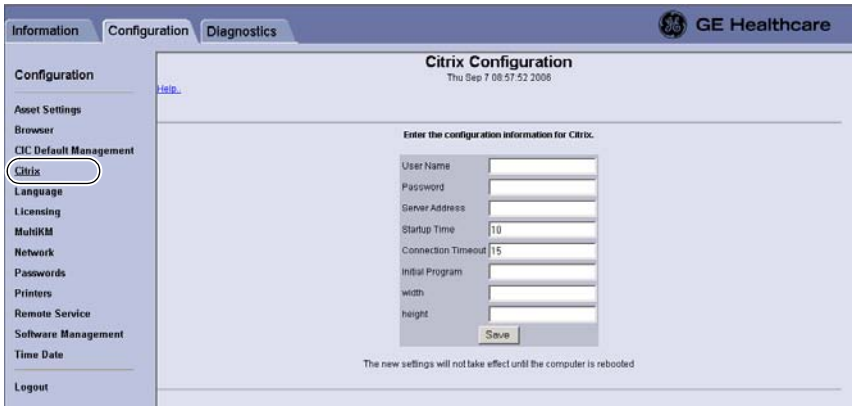
Display the Citrix window

1. From the Webmin application window, click ***Configuration***. The ***Configuration*** window displays.



608B

2. From the ***Configuration*** window, click the ***Citrix*** link. The ***Citrix Configuration*** window displays.



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Enter the Citrix configuration information

1. Get the Citrix configuration information for the Citrix server from the hospital's information technologies (IT) or biomedical engineering department.
2. From the ***Citrix Configuration*** window, type the applicable information into the displayed data fields.
3. In the ***width*** and ***height*** fields, type an appropriate numeric value to define the display size of the Citrix application window:
   - The approximate ***width*** x ***height*** default settings for a full-page application (on a secondary display) is 1280 x 900.
   - The approximate ***width*** x ***height*** default settings for a half-page application is 1280 x 280.

   NOTE

   When you define both the ***width*** and ***height*** values for the displayed Citrix application window, *scroll bars* allow you to move through the displayed information.

   Scroll bars are *not* provided in the Citrix application window unless you enter numeric values for both the ***width*** and the ***height*** fields.

   When you leave the ***width*** and ***height*** fields empty, the Citrix application automatically resizes itself to fit the default page size of the CIC Pro center.
4. Click ***Save***. Your changes will not take affect until the CIC Pro center is rebooted.

Browser Configuration

This section describes the procedures required to set up, configure the Internet browser and add or delete browser favorites on the CIC Pro center.

Configure the CIC Pro center's internet connection properties

Before you set up your initial ***Browser*** favorite, you must first configure the CIC Pro center's internet connection properties.

This section describes the procedures required to configure the CIC Pro center's internet connection properties:

- "Log on to the Service mode service interface".
- "Display the Browser window".
- "Configure the Internet Properties".

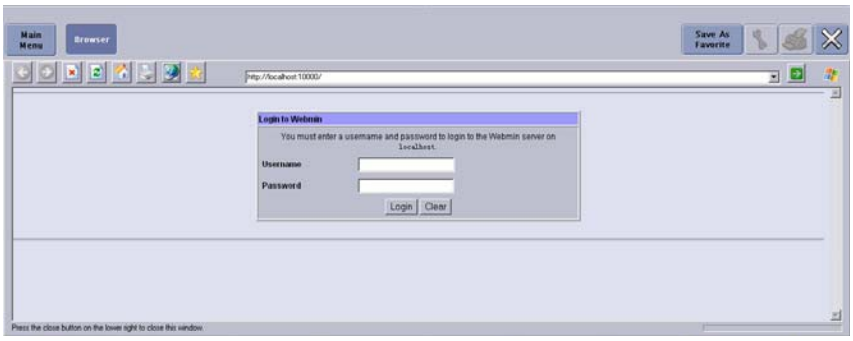
Log on to the Service mode service interface

- See "Log on to the Service mode" on page 4-5.

WARNING
QUALIFIED PERSONNEL — The service mode is intended for use only by qualified personnel with training and experience in its use. The consequences of misuse include loss of alarm configuration, loss of patient data, corruption of the CIC Pro center operating system software, or disruption of the entire Unity Network.

Display the Browser window

1. From the Multi-patient viewer, click ***Browser***. The ***Browser*** window displays.



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The following table identifies the icons you click to navigate the ***Browser***.

window:

Icon	Description
	Back navigation button. ■ Return to previous (cached) webpage.
	Forward navigation button. ■ Advance to next (cached) webpage.
	Stop button. ■ Stop the webpage loading process.
	Reload button. ■ Reload the current webpage.
	Home button. ■ Go to the home webpage. To set a home page, see "Browser Configuration" on page 5-40.
	Print button. ■ Print the current webpage.
	Internet properties button. ■ Configure the internet options for the CIC Pro center.
	Favorites button. ■ View the list of webpage shortcuts (favorites) displayed on the right side of the browser. To change the list of displayed favorites, see "Browser Configuration" on page 5-40.

Configure the Internet Properties

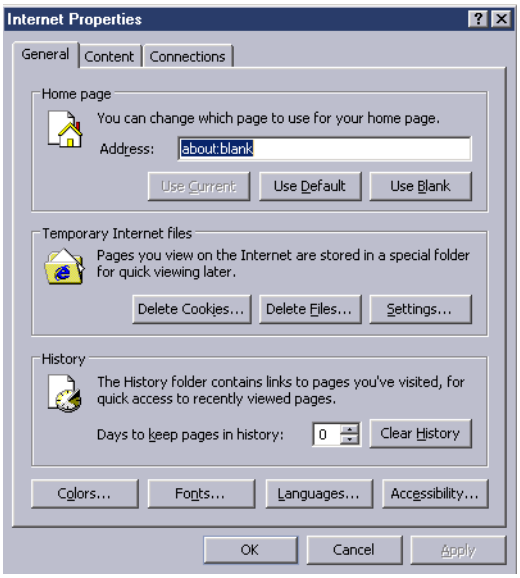
WARNING

LOSS OF MONITORING — If the browser function is inappropriately used, loss of monitoring function may result. Use alternate monitoring devices or close patient observation until the monitoring function at the CIC Pro center is restored.

When using the browser, follow these restrictions:

- Do NOT attempt to access the file systems of the CIC Pro center through the use of the browser.
- Do NOT attempt to download files of any type. This includes, but is not limited to, audio or video files.

1. From the ***Browser*** window, double-click the (internet properties) icon to display the ***Internet Properties*** window.



NOTE

The internet options icon will not be selectable unless you first log on to the CIC Pro center in the Service mode.

2. In the *Address* field, in the *Home Page* section enter the internet address you want for your browser home page, or select *Use Blank*. Click *OK*.

NOTE

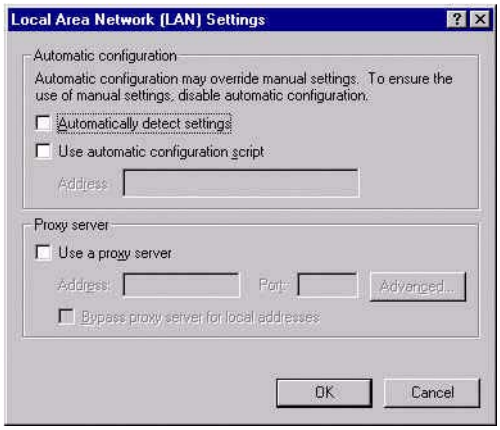
When Internet Explorer starts, the browser displays the specified *Home Page*.

3. Enter the *Automatic configuration* script or *Proxy server* address and port according to the hospital IT Administrator. Click *OK*

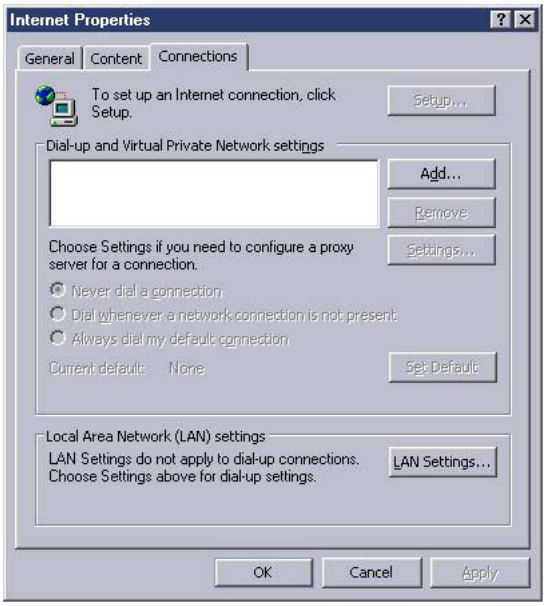
NOTE

Before the browser can access internet web addresses (external to the hospital network), a connection for the Unity Network IX network to the

internet is required. Contact the hospital IT Administrator.



4. Click the ***Connections*** tab. The ***Connections*** window displays.



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5. Under ***Local Area Network (LAN) settings***, click ***LAN Settings...*** The ***Local Area Network (LAN) settings*** window displays. Then, enter the ***Automatic configuration*** script or the ***Proxy server*** address.

   NOTE

   Before you can access internet or intranet web addresses, you must contact the hospital's IT department.

6. Under ***Automatic Configuration***, deselect (click to remove the check mark from the check box) the ***Automatically detect settings*** and ***Use automatic configuration script*** options.
7. Click ***OK*** to close the ***Local Area Network (LAN) settings*** window.
8. Click ***OK*** again to close the ***Internet Properties*** window.

Adding or deleting a browser favorite

This section describes the procedures required to add or delete a browser favorite:

- "Log on to the Webmin service interface".
- "Display the Browser window".
- "Add a browser favorite".
- "Delete a browser favorite".

Log on to the Webmin service interface

If not already logged on to the Webmin service interface, see "Log on to the local Webmin service interface" on page 4-6 or "Log on to the remote Webmin service interface" on page 4-6.

Display the Browser window

1. From the Webmin application window, click ***Configuration***. The ***Configuration*** displays.

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2. From the ***Configuration*** window, click the ***Browser*** link. The ***Browser*** window displays.

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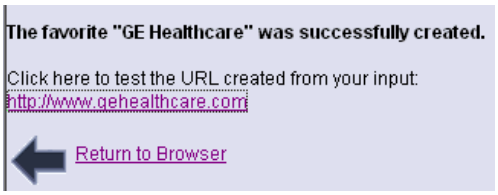
Add a browser favorite

Complete the following procedure to add a browser favorite:

1. Under ***Please enter a name for this favorite***, type the name that will identify this website in the browser's ***Favorites*** menu.
2. Under ***Please enter an IP address or URL (webpage address)***, type the internet address (IP address) of this website.
3. Under ***Please select a favorite type***, click to fill the radio button next to the type of browser favorite this is.
4. If necessary, click ***Reset*** to clear the fields and selections in this window and start again.
5. Click ***Create Favorite***. A message similar to the following displays:


The favorite "GE Healthcare" was successfully created.
Click here to test the URL created from your input:
http://www.gehealthcare.com
Return to Browser

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6. Click the link to test the URL of this website.
7. Click ***Logout*** to log out of the Webmin service interface.

Delete a browser favorite

Complete the following procedure to delete a browser favorite:

1. From the ***Browser*** window, right-click on the favorite link you want to delete.
2. Click ***Delete***. A ***Confirm File Delete*** message displays.
3. Click ***Yes*** to delete this browser favorite.

Configuring the clinical application, telemetry, and care unit settings

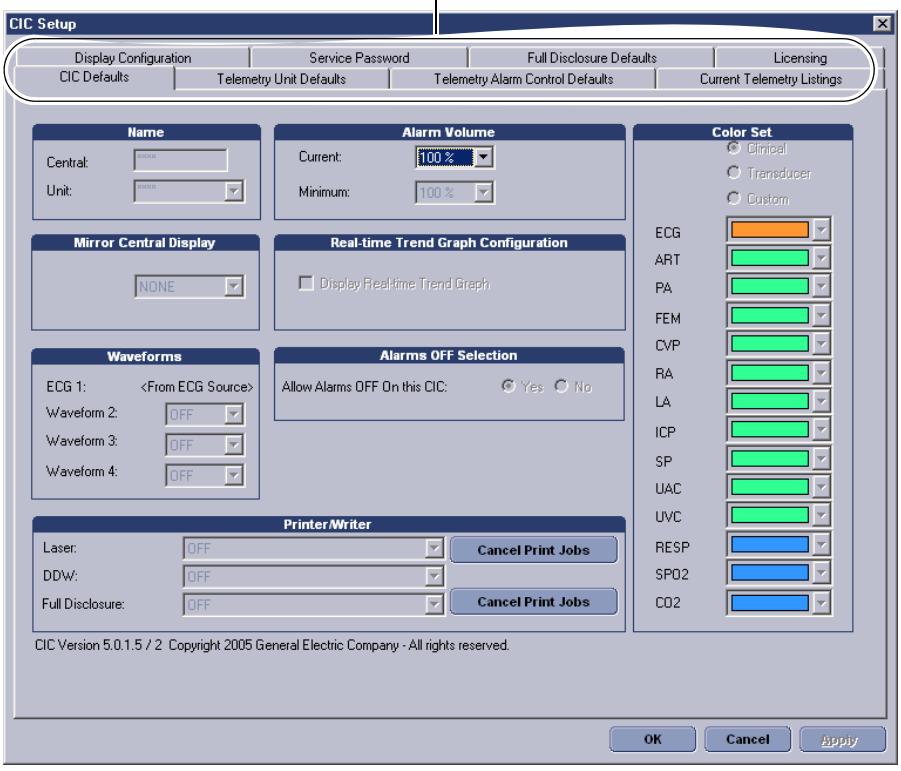
This section describes the procedures required to configure the clinical application, telemetry, and care unit settings protected by the Service mode password:

- "Display the CIC Setup window and menu".
- "Log on to the Service mode service interface".
- "Configure the CIC Defaults settings".
- "Configure the Telemetry Unit Defaults Settings".
- "Set the Full Disclosure Defaults".
- "Set the Display Configuration".
- "Set the Current Telemetry Listings".

Display the CIC Setup window and menu

From the multi-patient viewer, click ***Setup CIC***. The ***CIC Setup*** window and menu displays.

CIC Setup menu



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Log on to the Service mode service interface

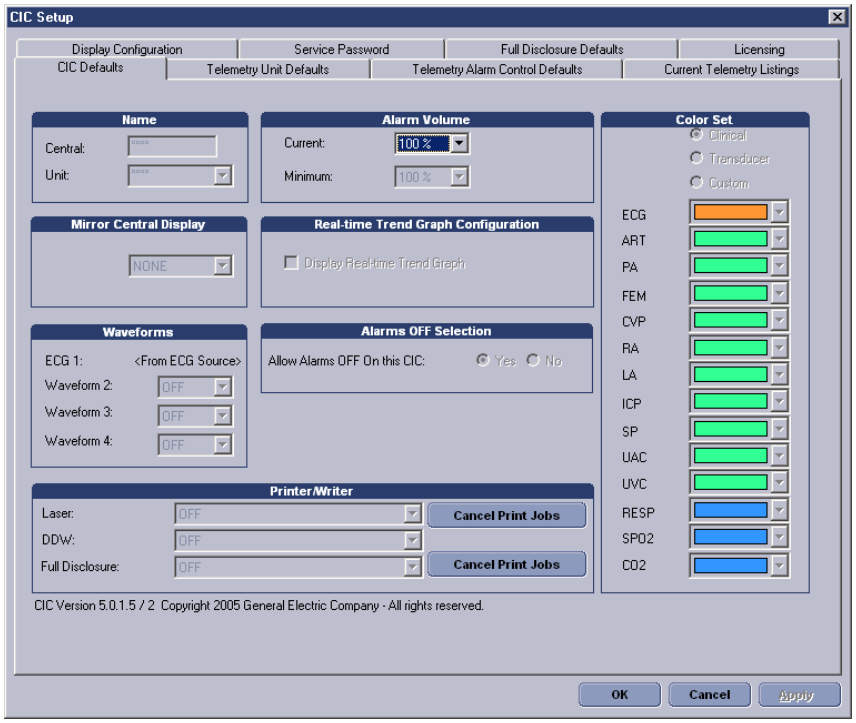
See "Log on to the Service mode" on page 4-5.

WARNING
QUALIFIED PERSONNEL — The service mode is intended for use only by qualified personnel with training and experience in its use. The consequences of misuse include loss of alarm configuration, loss of patient data, corruption of the CIC Pro center operating system software, or disruption of the entire Unity Network.

Configure the CIC Defaults settings

Complete the following procedure to configure the ***CIC Defaults*** settings:

1. From the ***CIC Setup*** menu, click ***CIC Defaults***. The ***CIC Defaults*** window displays.



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2. Change any of the following default settings:

Configuring the *CIC Defaults* settings	
Option	Function
Name	Set the central station and unit names: **CAUTION** Once the care unit name is programmed, and the CIC Pro center is placed in use, avoid changing the care unit name. Changing the care unit name deletes all full disclosure data and the list of transmitters stored on the CIC Pro center. You must re-enter that data after you change the care unit name. **NOTE** ◆ All other systems on the GE Unity Network MC network use the *Central* name to identify this CIC Pro center system. The central name should be relevant to the location, such as CS-2 or SDU3. ◆ Make sure no other central stations have the same central name. ◆ The maximum length of the central name is four characters. *Central*: Type the central name into the data field. *Unit*: Click the down arrow to select a *Unit* name from the displayed list. When entering a *Unit* name, the following rules apply: ■ All other systems on the Unity Network MC network use the care *Unit* name to identify this CIC Pro center. The care unit name should be relevant to the location, such as CCU or ICU-1. ■ It is very important to enter the correct care unit name. Be especially careful of the name's spelling. ■ If any other CIC Pro centers are intended to have the same care unit name, make sure the care unit names match exactly. ■ If the care unit name is not displayed in the *Unit* list, you must type it in. Then press *Enter*.
Mirror Central Display	Set up a a mirror image view of a primary CIC Pro center. To set up a mirror CIC Pro center, see "Setup a mirror CIC Pro center" on page 5-51.
Waveforms	Set the waveforms you want to display (up to three in addition to the ECG waveform): ■ *ECG1 <From ECG Source>*: This waveform data automatically displays from the default ECG source. ■ *Waveform 2* to *Waveform4*: Choose to graph subsequent ECG leads. Choices are: *Off*, *I*, *II*, *III*, *V*, *aVR*, *aVL*, and *aVF*.
Printer/Writer	Set the default print devices used to print alarm graphs, manual graphs, and full disclosure or flow volume loops data: ■ *Laser*: Choose your network laser printer. ■ *DDW*: If a digital writer is connected to the CIC Pro center's *COM2* port, choose *COM2*. ■ *Full Disclosure*: Choose your network laser printer. **NOTE** ◆ Use a laser printer when the CIC Pro center is interfacing with the Unity Patient Data Server (PDS) or when printing full disclosure reports or flow volume loops information. A digital writer does not print data under these conditions. ◆ Full disclosure reports can potentially be very large and take a very long time to print. This can block alarm graphs sent to that printer. As a result, the printer selection list for ***Full Disclosure*** is different from the printer selection list for graphing patient data. The printer selection list may not include printers defined on the GE Unity Network IX network.

Configuring the *CIC Defaults* settings	
Option	Function
Alarm Volume	Set the alarm volume for the CIC Pro center: ■ *Current*: Choose any value above the *Minimum* alarm volume setting. This *Current* alarm volume setting determines the actual alarm volume. ■ *Minimum*: Choose the minimum alarm volume level. The minimum alarm volume in user mode cannot be adjusted below this set value. Choices are: *100%*, *90%*,*80%*,*70%*,*60%*,*50%*,*40%*,*30%*,*20%*,*10%*, *OFF*. **NOTE** The ***Minimum*** alarm volume can only be set via the Service mode. You can set the ***Current*** alarm volume to any level above the ***Minimum*** via the user or Service mode.
Real-Time Trend Graph Configuration	Enable or disable the display of real-time trend windows in the multi-patient viewer. The real-time trend window displays the recent patient trends for a maximum of two parameters in a graph format. You can configure the *Real-Time Graph* for each patient while in user mode only. To enable the display of the real-time trend windows in the multi-patient viewer, fill the checkbox next to *Display Real-Time Trend Graph* with a check mark.
Alarms OFF Selection	Set the alarm behaviors for telemetry alarms and for arrhythmia detection: ■ *Yes*: Choose *Yes* to allow the clinician to: (1) Turn off a monitored telemetry patient's alarms via the *Monitor Setup* > *Alarm Control* window > *Alarms On/Off* option. (2) Turn off a monitored patient's ECG arrhythmia detection via the *Monitor Setup* > *ECG* > *Arrhythmia option*. ■ *No*: Choose *No* if you do not want the clinician to be able to turn off a monitored patient's telemetry alarms or ECG arrhythmia detection. **NOTE** The ***Alarms OFF Selection*** affects two areas of live patient monitoring: ◆ The ability to turn off alarms for a selected telemetry patient while in user mode. ◆ The ability to turn off arrhythmia detection for a selected patient while in user mode.

Configuring the *CIC Defaults* settings	
Option	Function
Real-Time BP/NIBP UOM Selection	**NOTE** This option is only available on CIC Pro centers running software version 5.0.4 or later configured for the Chinese language. Pressure values may be displayed in kPa when configured for the Chinese language. **NOTE** This option will be displayed in the Chinese language when the CIC Pro center is configured for the Chinese language. Set the unit-of-measure for pressures value display: ■ *mmHg* ■ *kPa* To set the pressures value, see "Setting the pressures unit-of-measure (Chinese only)" on page 5-55.
Color Set	Set the color scheme for waveforms. The preset choices are: *Clinical*, *Transducer*, or *Custom*. **NOTE** ◆ When you choose ***Custom***, you can select colors for each of the fourteen waveform types individually. ◆ When you choose either ***Clinical*** or ***Transducer***, access to the color palettes for individual waveforms is disabled. ■ *Clinical*: Set the colors for single-parameter or double-parameter patient monitoring. *ECG* waveforms display in orange; *ART*, *PA*, *FEM*, *CVP*, *RA*, *LA*, *ICP*, *SP*, *UAC*, and *UVC* display in green; and *RESP*, *SPO2*, and *CO2* display in blue. ■ *Transducer*: Set the colors for multi-parameter patient monitoring. Display colors are: *ECG* in brown, *ART* in red, *PA* in yellow, *FEM* in red, *CVP* and *RA* in blue, *LA* and *ICP* in white, *SP* in green, *UAC* in red, *UVC* in blue, *RESP* and *SPO2* in green, and *CO2* in white. ■ *Custom*: Set each waveform color individually. To set custom default waveform colors, click the down arrow next to the parameter waveform color you want to change. Then, click on the desired color for each parameter.

3. After making your selections, complete one of the following tasks:
   - Click ***OK*** to apply your changes and close the ***Setup CIC*** window.
   - Click ***Cancel*** to cancel your changes and close the ***Setup CIC*** window.
   - Click ***Apply*** to apply your changes without closing the ***Setup CIC*** window.

Setup a mirror CIC Pro center

The ***Mirror Central Display*** option allows double-monitoring of patients from remote, or secondary CIC Pro centers. The display on the remote CIC Pro center is configured to mirror the originating CIC Pro center (e.g., the same patients are shown in the same display slots).

If the remote CIC Pro center is located in the same care unit as the originating CIC Pro center, it can be used to perform the ***Admit/Discharge***, or any other display-type operation(s). The changes in most cases affect both CIC Pro centers. For example, if the patient in a display slot is changed at one CIC Pro center, the change is also automatically performed on the mirroring CIC Pro center.

CAUTION

Use caution when configuring mirror CIC Pro center displays. Since changes at one CIC Pro center can affect the other display, there may be an inadvertent loss of patient monitoring at the primary CIC Pro center.

You can set up a mirror CIC Pro center for remote monitoring. This is set in the Service mode. Changes made on one CIC Pro center are *not* always made at the other CIC Pro center. The main and mirror CIC Pro center share bed lists. When a mirror CIC Pro center is set up, these rules are in place:

- If the user selects new parameters or colors to view on one display, that view is *not* "mirrored" on the other display.
- ***Auto Display*** is disabled at the mirror CIC Pro center. However, it is still active on the main CIC Pro center. You must click ***Setup CIC*** > ***Display Configuration*** > ***Disable Auto Display*** at the main CIC Pro center.
- The user cannot change the display configuration on the mirror CIC Pro center.
- The display configuration is dynamic in nature.
- The title bar of the mirror CIC Pro center displays ***mirror of [CIC SELECTED]***.

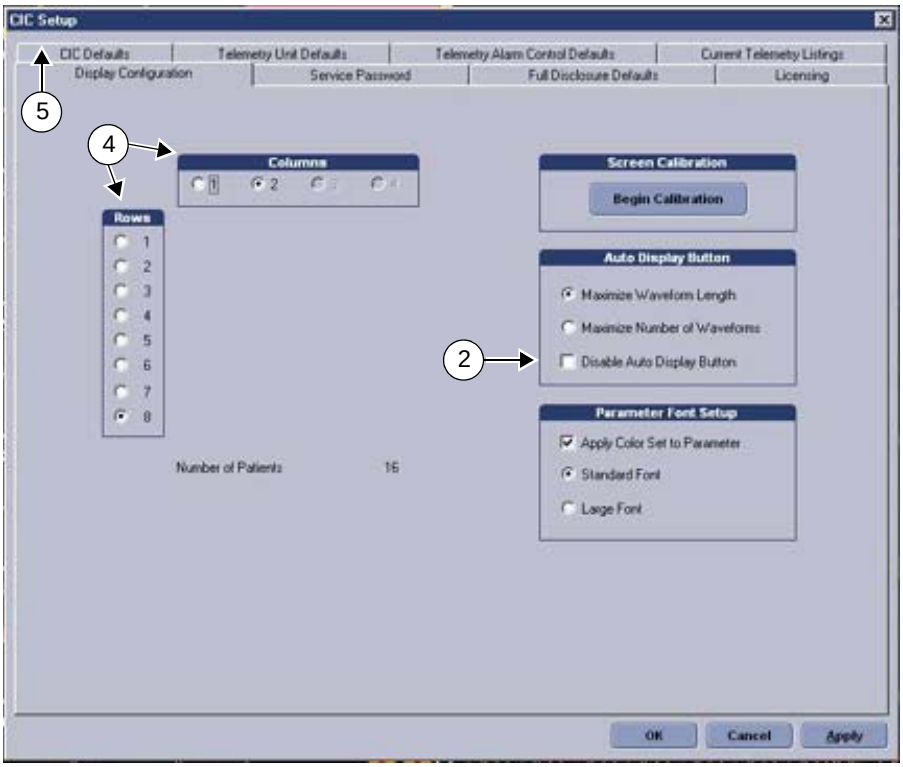
Complete the following procedure to set up a mirror CIC Pro center:

1. At the remote CIC Pro center (mirroring the main CIC Pro center), click ***Setup CIC*** > ***Display Configuration***. The ***Display Configuration*** window displays.

   NOTE

   Auto Display is disabled on the remote CIC Pro center. However, it is still active on the main CIC Pro center.

2. Under ***Auto Display Button***, click the ***Disable Auto Display button*** check box to fill it with a a check mark.



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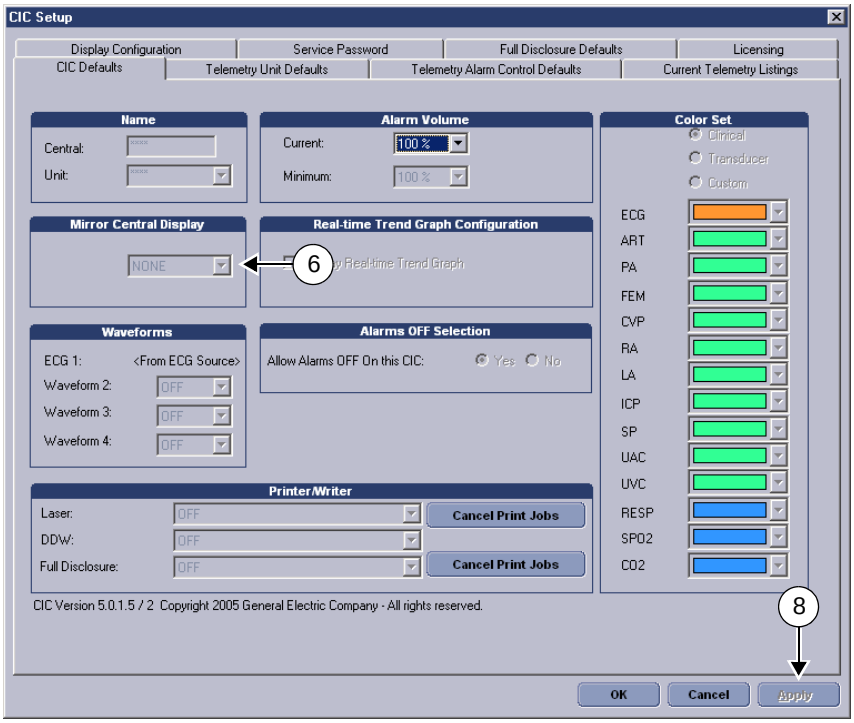
3. Configure both the main and the remote CIC Pro centers to the same ***Display Configuration*** settings for the mirror feature to work correctly.
4. Set the ***Columns*** and ***Rows*** in the ***Display Configuration*** tab of the remote CIC Pro center to match the main CIC Pro center.
5. From the ***CIC Setup*** menu, click ***CIC Defaults*** to display the ***CIC Defaults*** window.

6. Under ***Mirror Central Display***, click the down arrow to display a list of all the CIC Pro centers on the Unity Network. Choose the main CIC Pro center you want mirrored on the remote CIC Pro center.



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7. Check the title bar on the remote CIC Pro center to verify that it is mirroring the correct CIC Pro center.
8. Click ***Apply*** to apply your changes without closing the ***CIC Setup*** window.

Alarm notification when mirrored example

If the situation is:

- TELE|CIC1 is the primary monitoring central
- 3North|CIC1 is the CIC Pro center that is mirroring TELE|CIC1
- If TELE|CIC1 alarms (audible and visual), does 3North|CIC1 also alarm both audible and visual?

The answer is:

- If the mirror CIC Pro center is v5 or later, then alarms will be visual. Also, you can configure a mirror CIC Pro center running v5 or later to have audible alarms. You can configure the Multi-Viewer alarm audio and ADU window using setflags commands. See “Command-line utilities” on page 4-17.
- If the mirror CIC Pro center is v4.1.1 or earlier, alarms will be visible and not audible.
- If the mirror CIC Pro center is in the same care area then alarms will be audible and visible and it is not version dependent.

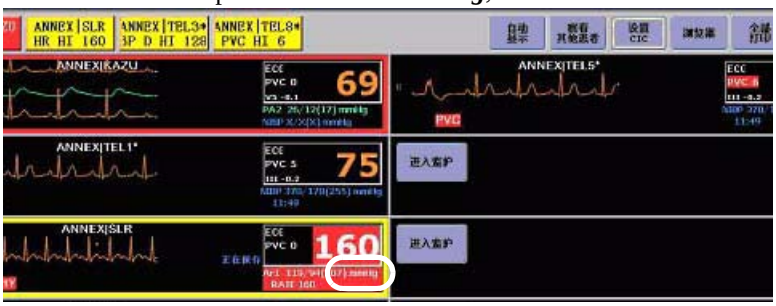
Setting the pressures unit-of-measure (Chinese only)

NOTE

This option is only available on CIC Pro centers running software version 5.0.6 or later configured for the Chinese language. Pressure values may be displayed in kPa when configured for the Chinese language.

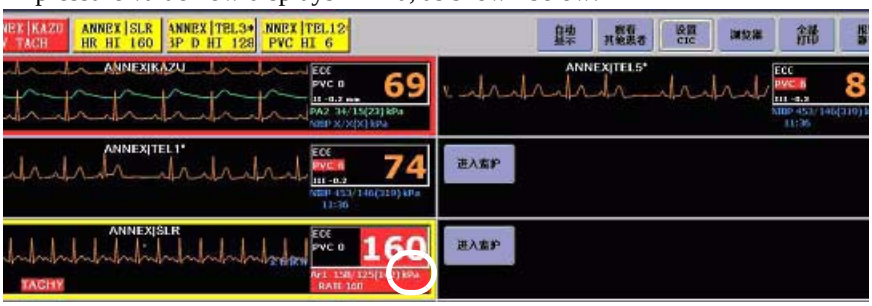
Complete the following procedure to set up the pressures values to display in kPa.

1. From the ***CIC Setup*** menu, click ***CIC Defaults*** to display the ***CIC Defaults*** window. The default pressures value is ***mmHg***, as shown below.



2. Under ***Real-Time BP/NIBP UOM Selection***, select ***kPa***.

3. Click ***Apply*** to apply your changes without closing the ***CIC Setup*** window. The pressure value now displays in kPa, as shown below.



Configure the Telemetry Unit Defaults Settings

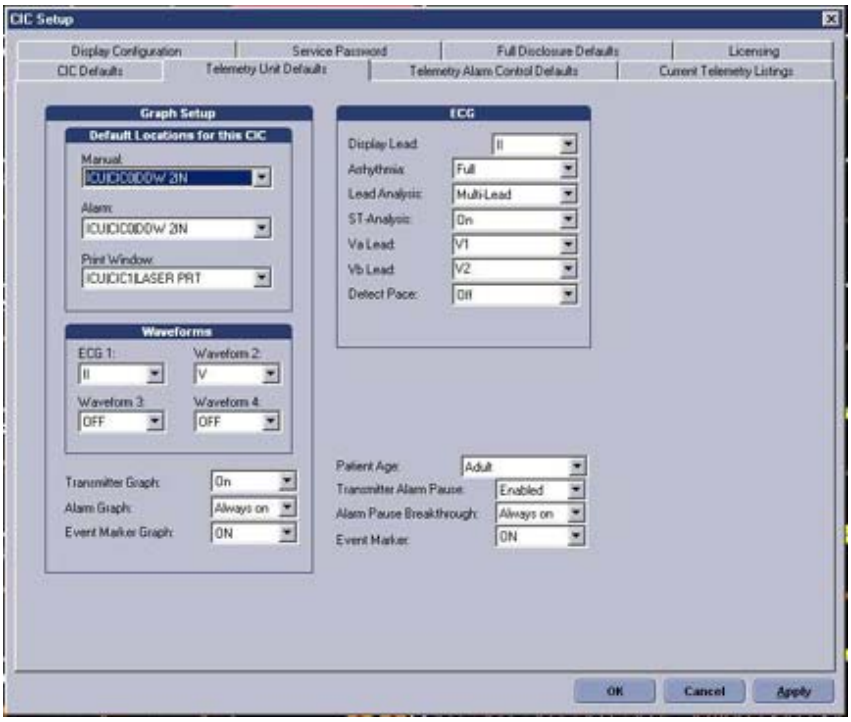
This option sets telemetry unit default settings. In user mode, all of the controls in the ***Telemetry Unit Defaults*** window are view-only. You must be in the Service mode to set the ***Telemetry Unit Defaults*** at the CIC Pro center.

NOTE

For more information on setting ***Telemetry Unit Defaults***, refer to the telemetry system's operator manual.

Complete the following procedure to configure the ***Telemetry Unit Defaults*** settings:

1. From the ***CIC Setup*** menu, click ***Telemetry Unit Defaults***. The ***Telemetry Units Defaults*** window displays.



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2. Change any of the following default settings:

Configuring the *Telemetry Unit Defaults* settings	
Option	Function
Graph Setup	**NOTE** When changing the ***Graph Setup*** options for admitted patients, the changes do not take effect until the patients are discharged. Temporary changes may be made for a specific patient via the single patient viewer > ***Monitor Setup*** > ***Graph Setup***.
Default Location for this CIC	Set the print location for telemetry bed patient data: ■ *Manual*: Designate the default manual graph location for telemetry patients. ■ *Alarm*: Designate the default alarm graph location for telemetry patients. ■ *Print WIndow* Designate the default print window location for telemetry patients. **NOTE** These default locations are only used for telemetry beds and determine where patient data prints for either manual or alarm conditions. Since a telemetry patient is not linked to a patient monitor, these defaults are necessary to specify the destination for alarm and manual graph printouts.
Waveforms	Designate the primary ECG lead for printing and enable or disable printing from subsequent ECG leads: *ECG 1:* Designate the primary ECG lead for printing. *Waveform 2 to Waveform 4:* Choose other ECG leads to print or choose *OFF* to disable printing an ECG lead. Choices are: *Off*, *I*, *II*, *III*, *V*, *aVR*, *aVL*, and *aVF*.
Transmitter Graph	Turn on or turn off transmitter graph printing.

Configuring the *Telemetry Unit Defaults* settings	
Option	Function
Alarm Graph	Turn on or turn off alarm graph printing. Choices are: *Always on* or *Always off*.
Event Marker Graph	Turn on or turn off event marker graph printing.
ECG	
Display Lead	Set the primary ECG lead for display in the patient's waveform window. Choices are: *I*, *II*, *III*, *V*, *aVR*, *aVL*, and *aVF*.
Arrhythmia	Enable or disable an arrhythmia analysis program. Choices are: *Full*, *Lethal*, and *Off*.
Lead Analysis	Designate *Single-Lead* or *Multi-Lead* analysis for ECG and arrhythmia analysis.
ST Analysis	Enable or disable ST analysis. Choices are: *On* or *Off*.
Va Lead *Vb Lead*	*Va Lead/Vb Lead*: Set the default for the V leads that will be monitored in these positions. A 6-lead cable is required for multiple V-lead monitoring. Choices for Va are: *V1*, *V2*, *V3*, *V4*, *V5*, and *V6*. Choices for Vb are: *V2*, *V3*, *V4*, *V5*, and *V6*.
Detect Pace	Enable or disable pacer detection. Choices are: *Pace 1*, *Pace 2*, and *Off*.
Patient Age	Set patient age. Choices are: *0–2 Years*, *3–11 Years*, *11–13 Years*, and *Adult*.
Transmitter Alarm Pause	Turn on or turn off transmitter alarm pausing. Choices are: *Always on* or *Always off*.
Alarm Pause Breakthrough	Turn on or turn off transmitter alarm pause breakthrough. Choices are: *Always on* or *Always off*.
Event Marker	Turn on or turn off event marker alert.

3. After making your selections, complete one of the following tasks:
   - Click ***OK*** to apply your changes and close the ***Setup CIC*** window.
   - Click ***Cancel*** to cancel your changes and close the ***Setup CIC*** window.
   - Click ***Apply*** to apply your changes without closing the ***Setup CIC*** window.

Set the Telemetry Alarm Control Defaults

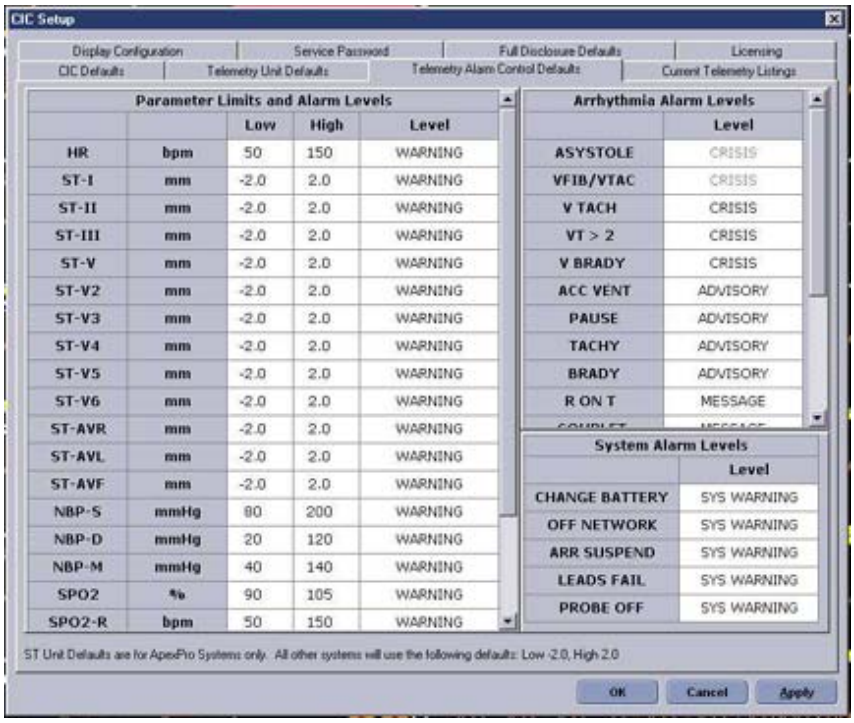
This option sets the telemetry default alarm limits and alarm level settings. In user mode, all of the controls in the ***Telemetry Alarm Control Defaults*** window are view-only. You must be in the Service mode to set the ***Telemetry Unit Defaults*** at the CIC Pro center.

NOTE

For more information on setting ***Telemetry Alarm Control Defaults***, refer to the telemetry system's operator manual.

Complete the following procedure to configure the ***Telemetry Alarm Control Defaults*** settings:

1. From the ***CIC Setup*** menu, click ***Telemetry Alarm Controls Defaults***. The ***Telemetry Alarm Control Defaults*** window displays



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2. Change any of the following default settings:

Configuring the *Telemetry Alarm Controls Defaults* settings	
Option	Function
Parameter Limits and Alarm Levels	Set default parameter alarm limits and alarm levels for the following parameters: *HR*, *NBP-S*, *NBP-D*, *NBP-M*, *SPO2*, *SPO2-R*, *ST-I*, *ST-II*, *ST-III*, *ST-V*, *ST-V2*, *ST-V3*, *ST-V4*, *ST-V5*, *ST-V6*, *ST-aVR*, *ST-aVL*, *ST-aVF*, and *PVC*.
Arrhythmia Alarm Levels	Set default alarm levels for the following arrhythmia calls: *ASYSTOLE*, *VFIB/VTAC*, *V TACH*, *V BRADY*, *VT>2*, *ACC VENT*, *PAUSE*, *TACHY*, *BRADY*, *R ON T*, *COUPLET*, *BIGEMINY*, *TRIGEMINY*, *PVC*, *IRREGULAR* and *ATRIAL FIB*.
System Alarm Levels	Set default alarm levels for the following system alarms: *CHANGE BATTERY*, *OFF NETWORK*, *ARR SUSPEND*, *LEADS FAIL*, and *PROBE OFF*.

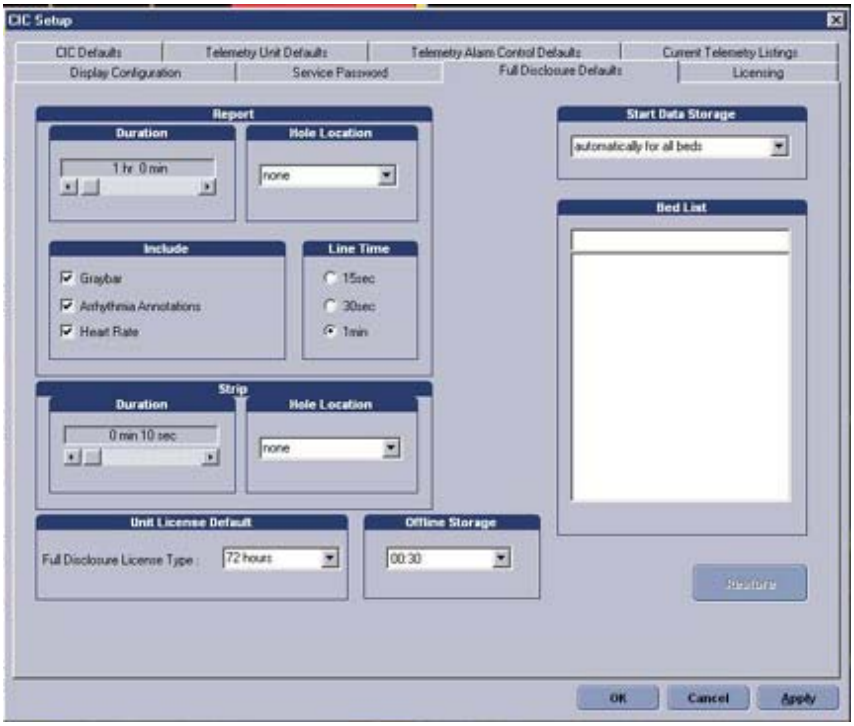
3. After making your selections, complete one of the following tasks:
   - Click ***OK*** to apply your changes and close the ***Setup CIC*** window.
   - Click ***Cancel*** to cancel your changes and close the ***Setup CIC*** window.
   - Click ***Apply*** to apply your changes without closing the ***Setup CIC*** window.

Set the Full Disclosure Defaults

This option sets the full disclosure settings. In user mode, only the full disclosure ***Report*** and ***Strip*** settings are configurable.You must be in the Service mode to set the other full disclosure settings at the CIC Pro center.

Complete the following procedure to configure the ***Telemetry Alarm Control Defaults*** settings:

1. From the ***CIC Setup*** menu, click ***Full Disclosure Defaults***. The ***Full Disclosure Defaults*** window displays:



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2. Change any of the following default settings:

Configuring the *Full Disclosure Defaults* settings	
Option	Function
Report	
Duration	Designate how much data is included in the report. The maximum report duration is 72 hours, depending upon licensing. To set the report duration, place the cursor on the scroll bar below the *Report Duration* display field. Move the scroll bar to the left for shorter duration or to the right for longer duration.
Hole Location	Provide space for binding printed reports. Choices are: *none*, *top*, *bottom*, *left*, and *right*.

Configuring the *Full Disclosure Defaults* settings	
Option	Function
Include	Set print characteristics. You may set any or none of these options. ■ *Graybar*: Display every other line of the report on a shaded background to provide visual differentiation from other lines. ■ *Arrhythmia Annotations*: Display the name of an applicable arrhythmia call underneath its occurrence in the report. ■ *Heart Rate*: Display the last active heart rate included in the report appears at the end of the report line.
Line Time	Designate how much data shows on an individual report line. Choices are: *15sec*, *30sec*, and *1min.*
Strip	
Duration	This option allows you to designate how much data is included in the strip. The maximum strip duration is 60 minutes. To set the strip duration, place the cursor on the scroll bar below the *Strip Duration* display field. Move the scroll bar to the left for shorter duration or to the right for longer duration.
Hole Location	This option allows space for binding printed report strips. Options are *none*, *top*, *bottom*, *left*, and *right*.
Unit License Default: Full Disclosure License Type	**NOTE** You must be in the Service mode to modify this setting. See "Log on to the Service mode" on page 4-5. Display a list of the full disclosure license type. Choices are: *none*, *24 hours*, *48 hours*, and *72 hours*. **NOTE** If the default does *not* match the actual license, full disclosure does *not* work.

Configuring the *Full Disclosure Defaults* settings	
Option	Function
Offline Storage	*Offline Storage* exists as a precautionary measure when contact with a monitor has been lost. This feature is applies most often when the monitor is being used in the *Rover* application, since the monitor moves ("roves") from room to room, on and off the network. If a discharge or admit cycle occurs off the network for a bed with full disclosure data collection, the full disclosure sub-system is unaware that the patient has changed. When the bed returns to the network, full disclosure will present the data from the discharged and admitted patients as part of the more recent patient's data. *Offline Storage* helps to prevent this by assuming that the patient has been discharged if the monitor is off the network for greater than the number of minutes selected with the *Offline Storage* control. **WARNING** POTENTIAL DATA LOSS — Do *not* allow a ***NO COMM*** (patient offline) event to exceed the time limit selected in the ***Offline Storage*** setting. The patient's full disclosure data is deleted if the time limit is exceeded. **NOTE** You must be in the service mode to modify the ***Offline Storage*** setting. See "Log on to the Service mode" on page 4-5. To modify an *Offline Storage* time period, follow these steps. 1. Select the *Full Disclosure Defaults* tab. 2. Click the *Offline Storage* field. A down arrow icon is displayed next to the current offline time period. 3. Click on the down arrow to display a list of time periods and select the desired time period. Choices are: *30 mins*, *1*, *2*, *4*, *8*, and *12 hours*. 4. A prompt appears. Select *Yes* if you are sure you want to change the Offline *Storage* time. The *Offline Storage* menu closes, with the selected time remaining visible.
Start Data Storage	**NOTE** You must be in the service mode to modify this setting. See "Log on to the Service mode" on page 4-5. Designate how full disclosure is enabled for patients at the time of admission. Choices are: ***automatically for all beds***, ***automatically if listed***, and *manually*.
Bed List	**NOTE** You must be in the service mode to modify this setting. See "Log on to the Service mode" on page 4-5. This option shows a listing of beds for which full disclosure data is automatically stored.
Restore button	Clear any changes you made to the ***Full Disclosure Defaults*** settings and revert to the previous settings.

3. After making your selections, complete one of the following tasks:
   - Click ***OK*** to apply your changes and close the ***Setup CIC*** window.
   - Click ***Cancel*** to cancel your changes and close the ***Setup CIC*** window.
   - Click ***Apply*** to apply your changes without closing the ***Setup CIC*** window.

Set the Display Configuration

The ***Display Configuration*** window allows you to format the CIC Pro center's multi-patient viewer with the required number of patient windows.

NOTE

Modifications to ***Display Configuration*** are subject to licensing restrictions. Licensing determines the number of beds displayed on the CIC Pro center screen. Modifying the display to show more than the licensed number of beds will result in blank slots in the display.

NOTE

You must remove admitted beds from the display before you can select a ***Display Configuration*** that would eliminate those patient slots from the display.

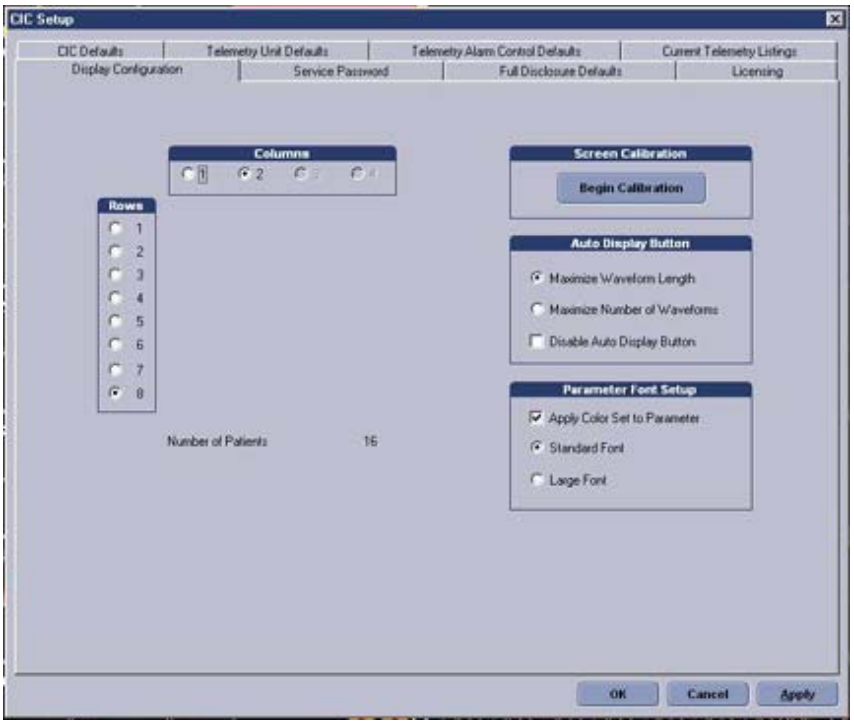
To do this, right-click the mouse pointer in the appropriate slot, and choose ***None*** from the ***Select Care Unit then Bed Number*** menu.

NOTE

An alarm will sound when removing admitted beds from the display if the beds are not viewed on another CIC Pro center.

Complete the following procedure to configure the ***Display Configuration*** settings:

1. From the ***CIC Setup*** menu, click ***Display Configuration***. The ***Display Configuration*** window displays:



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2. Change any of the following default settings:

Configuring the *Display Configuration* settings	
Option	Function
Columns	Set the number of columns of patient windows displayed in the multi-patient viewer.
Rows	Set the number of rows of patient windows displayed in the multi-patient viewer.
Screen Calibration	Display the *Screen Calibration* window used for adjusting the displayed waveform gain and sweep speed of non-touchscreen displays. See "Calibrate a display" on page 5-81.

Configuring the *Display Configuration* settings	
Option	Function
Auto Display Button	Configure the *Auto Display* button: ■ *Maximize Waveform Length*: Maximizes the duration of displayed waveforms. ■ *Maximize Number of Waveforms*: Maximizes the number of displayed waveforms. ■ *Disable Auto Display Button*: Removes the *Auto Display* button from the multi-patient viewer menu bar and prevents the use of this function. When enabled, the *Auto Display* button is selectable from the CIC Pro center's menu bar. Clicking the *Auto Displa*y button while viewing the multi-patient viewer can automatically complete the following tasks: ■ Remove any unoccupied display slots. ■ Add at least one empty patient window with an *Admit* button. ■ Resize the remaining patient windows to maximize the amount of displayed patient data. **NOTE** The amount of displayed patient data is dependent on the total number of patient windows displayed in the multi-patient viewer. It is also dependent on the ***Auto Display*** Button settings in the ***Display Configuration*** window (e.g., ***Maximizing the Waveform Length*** or ***Maximizing the Number of Waveforms***).
Parameter Font Setup	Designate the font color and font size of the parameter numeric data displayed in the multi-patient and single patient viewers: ■ *Apply color set to parameter*: Fill the check box with a check mark to apply the same parameter waveform color to the numeric parameter text. When the check box is empty, the numeric parameter text will be white in color. ■ *Standard Font*: Display parameter numeric data in a smaller font size. ■ *Large Font*: Display parameter numeric data in a larger font size.

3. After making your selections, complete one of the following tasks:
   - Click ***OK*** to apply your changes and close the ***Setup CIC*** window.
   - Click ***Cancel*** to cancel your changes and close the ***Setup CIC*** window.
   - Click ***Apply*** to apply your changes without closing the ***Setup CIC*** window.

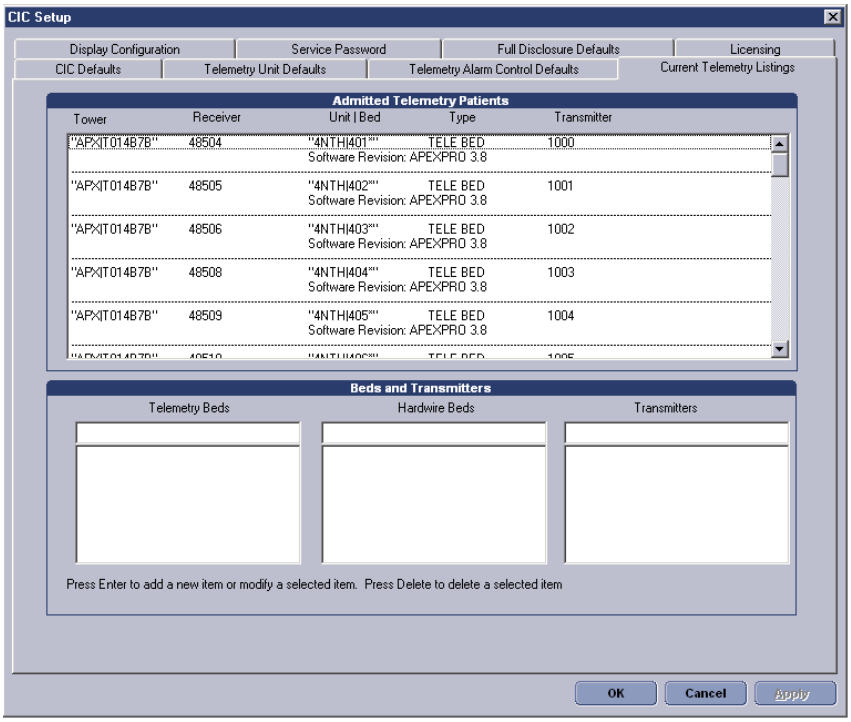
Set the Current Telemetry Listings

NOTE
Setting ***Current Telemetry Listings*** should only be done after the CIC Pro center name and computer name have been configured.

NOTE
Telemetry beds are distinguished from monitoring beds by an asterisk appended to the end of the bed number.

Complete the following procedure to configure the ***Telemetry Alarm Control Defaults*** settings:

1. From the ***CIC Setup*** menu, click ***Current Telemetry Listings***. The ***Current Telemetry Listings*** window displays:



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Configuring the *Current Telemetry Listings* window	
Option	Function
Admitted Telemetry Patients	Provide a view-only system overview of the for admitted telemetry patients. **NOTE** Each row displays information for one telemetry patient (sorted by TTX number). The second line of an entry shows the current software level for the patient bed in question. ■ *Tower*: The telemetry receiver cabinet (tower) this telemetry patient is communicating with. ■ *Receiver*: The receiver assembly (inside of the telemetry receiver cabinet) this telemetry patient is communicating with. The following information applies to a CDT-LAN using software versions prior to version 6D or to an Apex Pro telemetry system: ■ *Unit|Bed*: The unit and bed to which this patient has been assigned. ■ *Type*: The type of patient this is: *Tele Bed* or *Tele Combo*. ■ *Transmitter*: The identification number assigned to this patient's transmitter.
Telemetry Beds	Add, modify, or delete a telemetry bed name.
Hardwire Beds	Add, modify, or delete a hardwire bed name.
Transmitters	Add, modify, or delete a telemetry transmitter.

2. To add a new hardwire bed, telemetry bed, or telemetry transmitter, complete the following tasks:
   a. Click inside the blank box at the top of the list.
   b. Type the desired information.
   c. Press **Enter** to add the entry to the list.
3. To change an existing hardwire bed, telemetry bed, or telemetry transmitter, complete the following tasks:
   a. Use the scroll bar to locate the item you want to change.
   b. Click on the item to display an editing window.
   c. Change the information.
   d. Press **Enter** to add the entry to the list.
4. After making your selections, complete one of the following tasks:
   - Click ***OK*** to apply your changes and close the ***Setup CIC*** window.
   - Click ***Cancel*** to cancel your changes and close the ***Setup CIC*** window.
   - Click ***Apply*** to apply your changes without closing the ***Setup CIC*** window.

Activating the NO COMM alarm

NOTE

For ***NO COMM*** alarm behaviors, see the CIC Pro center operator's manual.

NOTE

Consult with your Clinical Application Specialists (CAS) or hospital staff about the use of this function and if it should be used with your configuration. For additional command-line utility functions that may be necessary, refer to "Command-line utilities" on page 4-17.

Complete the following procedure to activate the ***NO COMM*** alarm on the CIC Pro center:

1. "Log on to the command-line utility" on page 4-17.
2. From the ***c:\ Program Files\Marquette\CIC\<version#>*** prompt, type ***setflags***<space>***no_comm***<space>***on*** and press **Enter**. This activates the ***NO COMM*** alarm.

Performing command-line utilities

For more information, refer to “Command-line utilities” on page 4-17.

Configuring the speaker volume

Complete the following procedure to configure the speaker volume for the CIC Pro center:

1. "Log on to the command-line utility" on page 4-17.
2. At the ***c:\ Program Files\Marquette\CIC\<version#>*** prompt, type **setaudio**<space>**-d** and press **Enter**. The current speaker volume values for this CIC Pro center display.
3. Compare the speaker values displayed on your CIC Pro center to the values displayed in the following table:

HDM/5 Speaker Values	
Volume	Value
10%	2779
20%	3705
30%	4631
40%	5600
50%	6300
60%	7000
70%	10000
80%	12000
90%	16000
100%	20598

4. If the values match, go to step 6.
5. If the values do not match, complete the following steps:
   a. At the ***c:*** prompt, type ***setaudio*<space>*-x%*<space>*#*** and press **Enter** (***x%*** = 10% to 100% and ***#*** = audio value setting). Type values from each of the rows in the ***Speaker Values*** table and press **Enter** after entering each value.
   b. Type ***setaudio*<space>*-d*** and press **Enter** to verify the audio levels.
6. Restart the CIC Pro center to apply your changes:
   a. At the ***c:*** prompt, type **stop** and press **Enter.**
   b. From the Windows taskbar, click ***Start*** > ***Shut Down*** > ***Restart*** and press **Enter**.

Setting Locked or Unlocked Beds

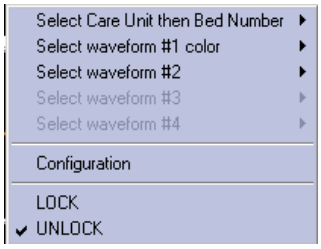
When logged onto the Service mode, the clinical information center can be configured with the bed names either in locked or unlocked mode. When locked, the bed name is permanently allocated to a particular slot on the CIC Pro center and users are unable to move the bed to another slot.

NOTE

It is possible to admit a patient to a window with a bed name that is locked to ***NONE***. To avoid duplication of patient waveforms, a window locked as ***NONE*** should not be used to admit a patient.

Complete the following procedure to lock or unlock a bed:

1. Position the mouse pointer in the patient's waveform window.
2. Press the right mouse button to display the right-click menu.



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3. Click to place a check mark next to either ***LOCK*** or ***UNLOCK***. The right-click menu closes, and the change takes effect immediately.

Configuring a secondary display

The CIC Pro center is already configured to interface with a secondary display. You just need to verify that this interface is working.

Before the secondary display will function correctly with the CIC Pro center, you must make sure all of the installation and configuration preconditions have been met. Then you can verify that the interface to the secondary display is working.

Verify the secondary display interface is working

1. Complete the "Preconditions for installing and configuring the secondary display" on page 3-10.
2. Complete "Connecting a secondary display" on page 3-11. After restarting the CIC Pro center and turning on the power to the primary and secondary displays, the secondary display should be illuminated and appear grey in color.
3. From the Multi-patient viewer, click ***Browser***. The ***Browser*** window should appear in the secondary display.
4. If the Browser window does not appear in the secondary display, you must "Configure the secondary display properties" on page 5-72.

Configure the secondary display properties

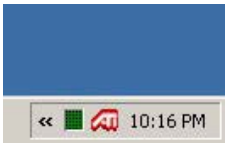
If the secondary display interface has not been pre-configured or is not working, you must configure the display properties for the secondary display.

Log on as an Administrator

If not already logged on as a Windows administrator, see "Log on to the Administrator mode" on page 4-4.

Display the ATI Display Settings window

1. From the bottom right corner of the screen, right-click the ***ATI*** icon displayed in the Windows toolbar.



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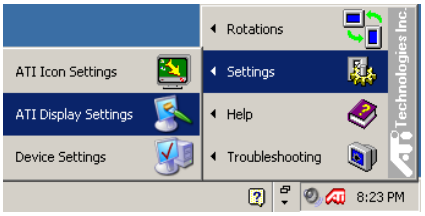
2. Choose ***Settings*** > ***ATI Display Settings***.



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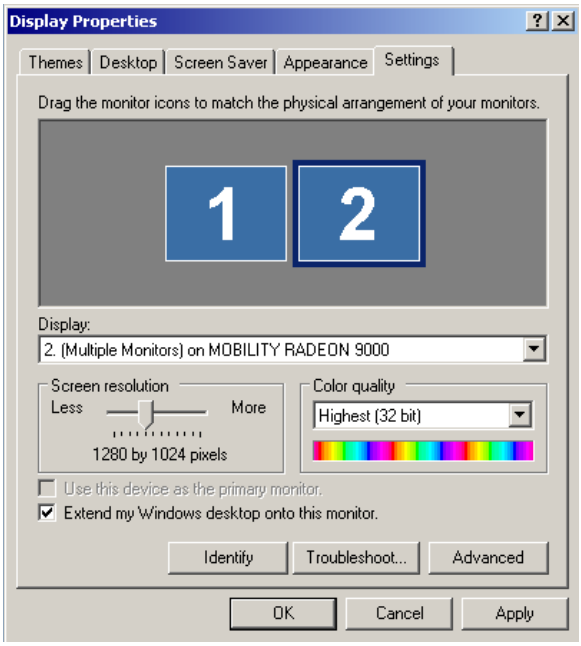
3. From the ***Display Properties*** window, click ***Settings***.

Configure the ATI Display settings

CAUTION

SECONDARY DISPLAY PLACEMENT — The secondary display is designed to be configured and positioned to the right of the primary display. Always configure and locate the secondary display to the right of the primary display. Otherwise you will not be able to display the alarm control drop down lists.

1. If the ***(Multiple Monitors) and MOBILITY RADEON 9000 Properties*** window displays, click ***Cancel*** to close it.
2. From the ***Display Properties*** window, click the ***2*** monitor icon.



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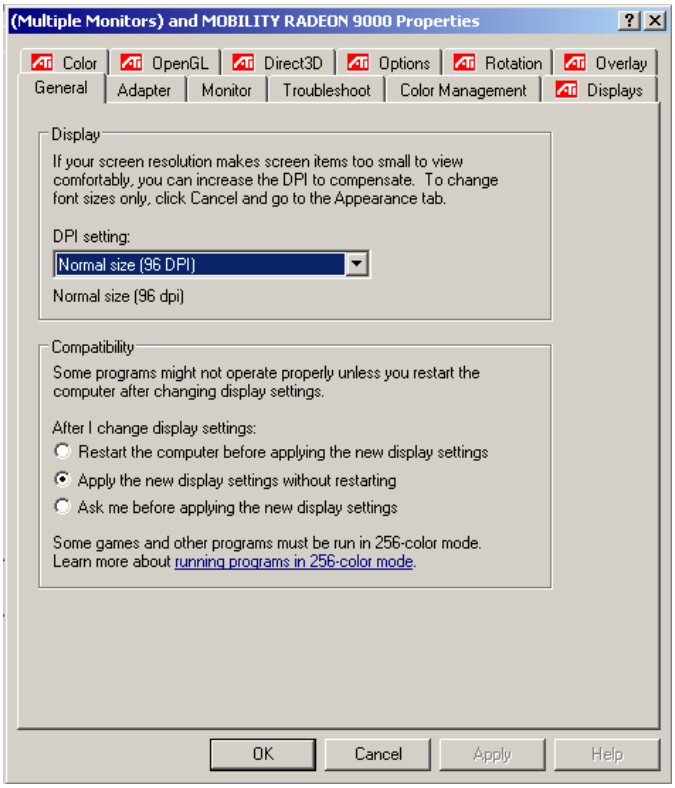
3. To extend the desktop to the secondary monitor, click to fill the checkbox next to ***Extend my Windows desktop onto the monitor***. Click ***OK*** and the desktop expands onto the secondary monitor.

   NOTE

   The secondary monitor displays a mirror image of the primary monitor display if the ***Extend my Windows desktop onto the monitor*** checkbox is not selected.

4. To change the ***Screen resolution*** setting for the ***2*** monitor, click ***Display Properties*** > ***Settings***. Note the setting.
5. Select the ***1*** monitor. Make sure the ***Screen resolution*** setting is the same for both monitors. The recommended screen resolution is ***1280 x 1024***.
6. Click ***Apply***, and then ***Yes*** to keep this setting change.
7. From the ***Display Properties*** window, click ***Advanced***, button for ***2*** monitor.

8. Select the ***General*** tab in the ***(Multiple Monitors) and MOBILITY RADEON 9000 Properties*** window.


(Multiple Monitors) and MOBILITY RADEON 9000 Properties
Color
OpenGL
Direct3D
Options
Rotation
Overlay
General
Adapter
Monitor
Troubleshoot
Color Management
Displays
Display
If your screen resolution makes screen items too small to view comfortably, you can increase the DPI to compensate. To change font sizes only, click Cancel and go to the Appearance tab.
DPI setting:
Normal size (96 DPI)
Normal size (96 dpi)
Compatibility
Some programs might not operate properly unless you restart the computer after changing display settings.
After I change display settings:
Restart the computer before applying the new display settings
Apply the new display settings without restarting
Ask me before applying the new display settings
Some games and other programs must be run in 256-color mode.
Learn more about running programs in 256-color mode.
OK
Cancel
Apply
Help

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9. Select ***Apply the new display settings without restarting*** option and click ***OK***.
10. Calibrate the screen. See “Calibrating the primary or secondary display screens” on page 5-81.

Setting the laser printer default paper size

NOTE

The CIC Pro center leaves the factory with the default paper size set to 8 x 11 inches (letter).

This section describes the procedures required for setting the default paper size:

- "Log on as an Administrator".
- "Display the Printers window".
- "Set the default paper size".

Log on as an Administrator

If not already logged on as a Windows administrator, see "Log on to the Administrator mode" on page 4-4.

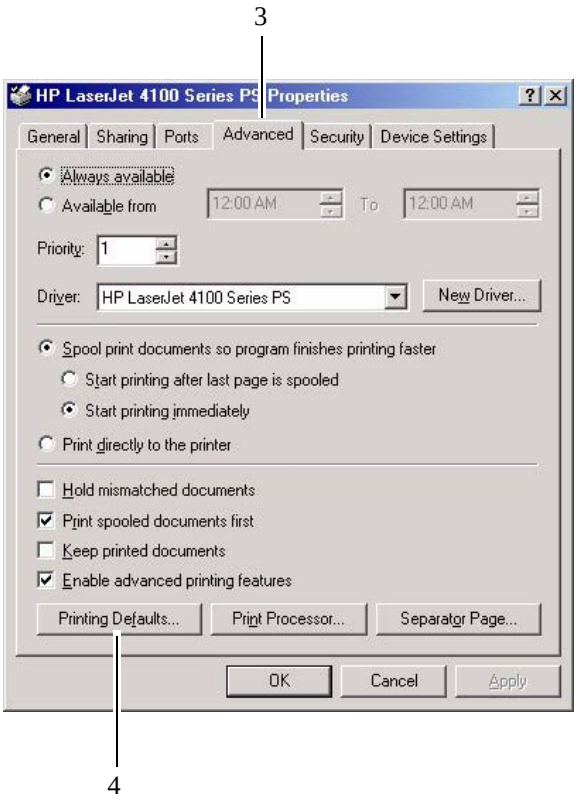
Display the Printers window

- From the Windows taskbar, click ***Start*** > ***Settings*** > ***Control Panel*** > ***Printers***. The ***Printers*** window displays.

Set the default paper size

1. From the ***Printers*** window, right-click the printer you want to configure.
2. Select ***Properties***.

3. Click the ***Advanced*** tab.



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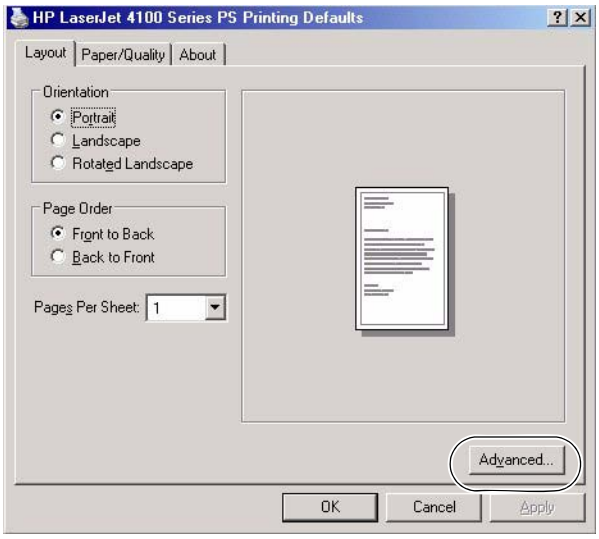
4. Click ***Printing Defaults***.

5. Click ***Advanced***.



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6. Choose the default paper size (***Paper Size***).

7. Click ***OK*** (***Advanced Options***).

8. Click ***OK*** (***Printing Defaults***).

9. Click ***OK*** (***Properties***).

Setting the CIC Pro center language

This section describes the procedures required to set the language of the CIC Pro center application:

- "Log on as an Administrator"
- "Display the Language window"
- "Set the language"

Log on as an Administrator

If not already logged on as a Windows administrator, see "Log on to the Administrator mode" on page 4-4.

Launch the Windows Internet Explorer

- From the desktop, double-click the

(***Internet Explorer*** icon) to launch this application. The ***Internet Explorer*** window displays.

Log on to the Webmin service interface

If not already logged on to the Webmin service interface, see "Log on to the local Webmin service interface" on page 4-6 or "Log on to the remote Webmin service interface" on page 4-6.

Display the Language window

1. From the Webmin application window, click ***Configuration*** if the ***Configuration*** window is not already displayed.

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2. Under ***Configuration***, click the ***Language*** link. The ***Language*** window displays.

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Set the language

WARNING
LANGUAGE LOCALIZATION — The CIC Pro center leaves the factory with the CIC Pro center application software set to English. Prior to placing this device into operation, you must set the language to the language required by your region or locale.

Complete the following procedure to set the language of the CIC Pro center's software application:

1. Select the language from the ***Language*** window drop-down list.
2. Click ***Submit***.
3. You must restart the CIC Pro center for this change to take effect. See "Restarting the CIC Pro center application" on page 5-80.

Restarting the CIC Pro center application

Complete the following procedure to restart the CIC Pro center application:

1. From the Windows taskbar, click ***Start*** > ***Shut Down*** > ***Restart*** and press **Enter**.
2. Wait for the CIC Pro center application window to display. The the CIC Pro center should restart normally in the clinical application mode.

Calibrating the primary or secondary display screens

Calibrating the display screen adjusts the waveform gain and sweep speed to ensure the displayed sweep speed is accurate.

Calibrating a touchscreen display adjusts the accuracy of the touchpoint on the display used to select an item. Touchscreen displays can be used with a CIC Pro center; however, if present, touchscreen calibration is required.

This section describes the non-touchscreen and touchscreen display calibration procedures for the primary or secondary displays used with the CIC Pro center.

Calibrate a display

CAUTION
When using a video splitter with the CIC Pro, screen calibration may be possible with only one of the monitors connected to the splitter. This is because changing calibration for one monitor will effect the calibration of all other monitors connected to that same splitter.

When using monitors connected to a splitter, only the last monitor calibrated will have proper calibration. Manual measurements should be made from that monitor only.

The display calibration process includes the following procedures:

- "Gather required tools".
- "Log on to the Service mode service interface".
- "Calibrate the screen".

Gather required tools

A flexible clear plastic ruler calibrated in inches and centimeters is recommended for this procedure.

Log on to the Service mode service interface

See "Log on to the Service mode" on page 4-5.

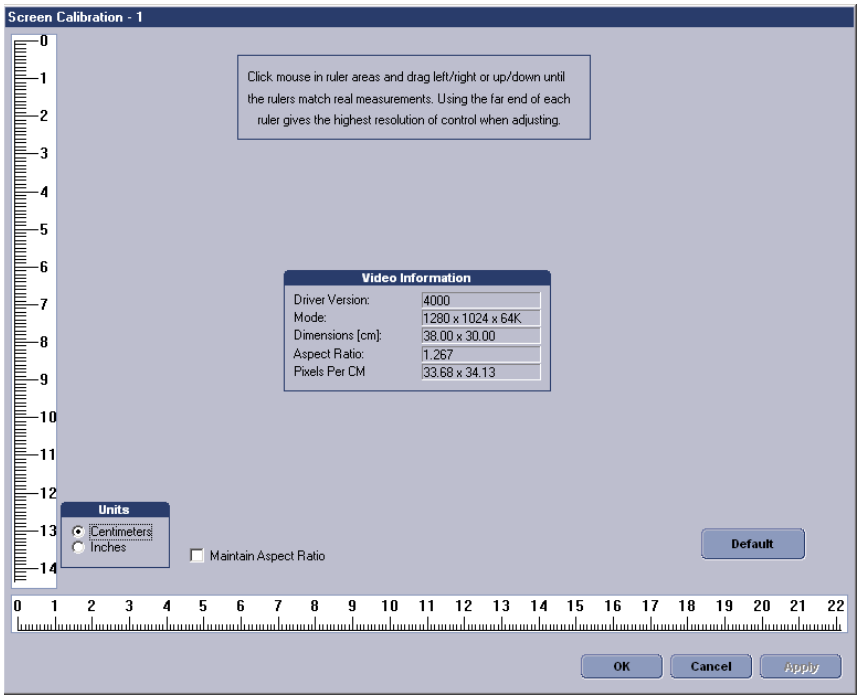
Calibrate the screen

NOTE

- The ***Maintain Aspect Ratio*** option displayed in the ***Screen Calibration*** window allows you to adjust both screen rulers simultaneously. However, because of differences in monitors and screen resolution, it is recommended that each ruler be adjusted separately. (When a check mark fills the check box, this option is selected. You should click in the check box to remove the check mark.)
- If two non-touchscreen displays are connected to the CIC Pro center,

complete the screen calibration on the primary display first, then the secondary display.

1. From the ***Setup CIC*** menu, click ***Display Configuration*** tab**.**
2. Under ***Screen Calibration***, click the ***Begin Calibration*** button. The ***Screen Calibration*** window displays on the primary display and also the secondary display, if present.


Screen Calibration - 1
Click mouse in ruler areas and drag left/right or up/down until the rulers match real measurements. Using the far end of each ruler gives the highest resolution of control when adjusting.
Video Information
Driver Version: 4000
Mode: 1280 x 1024 x 64K
Dimensions [cm]: 38.00 x 30.00
Aspect Ratio: 1.267
Pixels Per CM 33.68 x 34.13
Units
Centimeters
Inches
Maintain Aspect Ratio
Default
OK
Cancel
Apply

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3. Under ***Units***, choose ***Inches*** or ***Centimeters,*** as the unit of measurement you are calibrating to.
4. Click ***Default*** to set the display to the default resolution.
5. Hold your ruler horizontally on the computer screen, aligning the zero mark of your ruler with the horizontal zero mark of the screen ruler.
6. Position the arrow cursor on the screen ruler. Hold down the left mouse button while you drag (or pull) the screen ruler as required until the calibration marks of the screen ruler match the calibration marks of your ruler, then release the mouse button.
7. Repeat this procedure to calibrate the vertical screen ruler.
8. When finished, click ***Apply*** to apply your changes without closing the ***Setup CIC*** window.
9. Repeat steps 3 through 8 for the second display, if present.

Calibrate a touchscreen display

The type of video driver installed on the touchscreen display determines the application you must use to calibrate the touchscreen display.

Use the following information to determine the touchscreen capability with the CIC Pro center:

Touchscreen capability with CIC Pro center **v5**							
Use case	Touchscreen display	Model name	Part number	Driver used	Secondary display configuration	Single touch	Dual touch
1	18" Totuku medical grade display[1]	CDA18T	2014553-003	Elo Touchsystems	Yes	Yes[2]	No
2	19" NEC display	NEC 1980SXi	2023609-002	3M Touchware	Yes	Yes[3]	No
3	20" NEC display	NEC 2080UXi	2020737-003	3M Touchware	Yes	Yes[4]	No
4	19" GE medical grade display	CDA19T	2025280-004	Elo Touchsystems	Yes	Yes	Yes[5]

1. The 18" Totuku display does not have USB ports.
2. The 18" Totuku display supports single touch via the serial COM1 port. The bedrock CIC Pro center platform only has two serial ports; one serial port is always connected to a DDW.
3. The 19" NEC display supports single touch only, even though enough USB ports are available at the CIC Pro center.
4. The 20" NEC display supports single touch only, even though enough USB ports are available at the CIC Pro center.
5. The 19" GE medical grade display supports USB and serial COM1 port dual touch.

The calibration process includes the following procedures:

- "Log on as an Administrator".
- "To calibrate the screen using the Elo application".
- "To calibrate the screen using the Touchware application".

Log on as an Administrator

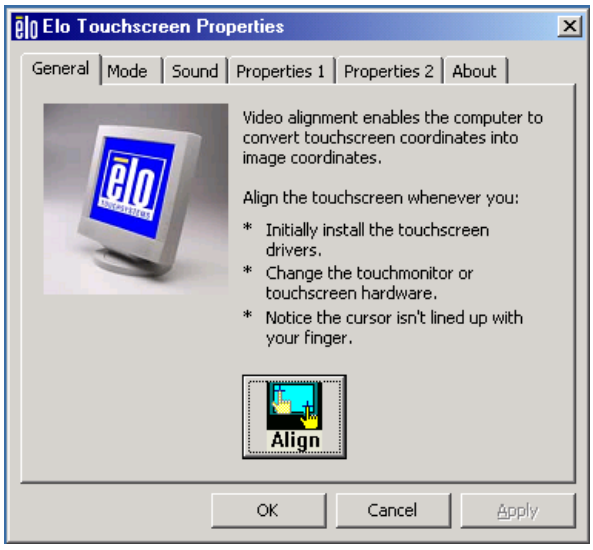
If not already logged on as a Windows administrator, see "Log on to the Administrator mode" on page 4-4.

To calibrate the screen using the Elo application

NOTE

- When two USB touchscreen displays (using the ***Elo*** video driver) are connected to the CIC Pro center, you will first calibrate the primary display, then the secondary display, and go back and calibrate the primary display again.
- When one USB touchscreen display and one serial touchscreen display (both using the ***Elo*** video driver) are both connected to the CIC Pro center, you will first calibrate the primary display, then calibrate the secondary display. You do not need to go back and calibrate the primary display as required when using two USB touchscreen displays.

1. From the Windows taskbar, click ***Start*** > ***Settings*** > ***Control Panel.***
2. Double-click the ***Elo Touchscreen*** icon. One of the following ***Elo Touchscreen Properties*** windows display:



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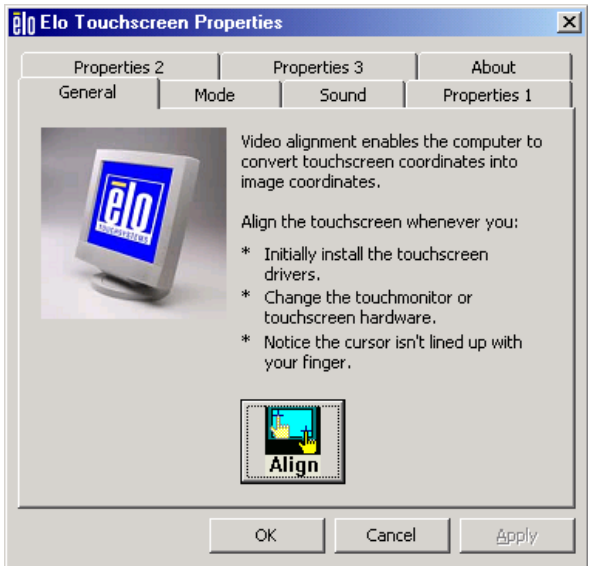
Displayed when a single USB touchscreen is connected, or when a USB touchscreen and a serial touchscreen are both connected.



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Displayed when a two USB touchscreen displays are connected.

3. From the ***General*** tab, click the ***Align*** button.
4. Follow the onscreen instructions to touch each of the targets displayed.
5. Touch the display and drag your finger across the screen. Does the mouse cursor follow your finger?

a. If the cursor followed your finger, click the green-colored check mark button.

b. If the cursor did not follow your finger, click the blue-colored arrow button and repeat step 4 and step 5.

6. If a second display is connected, complete step 4 and step 5 to calibrate the second touchscreen display.
7. If two USB touchscreen displays are used, you must go back and calibrate the primary touchscreen display again. Repeat step 4 and step 5 to calibrate the primary USB touchscreen display.
8. From the ***Elo Touchscreen Properties*** window, click ***OK*** when all of the connected touchscreen displays are calibrated.

To calibrate the screen using the Touchware application

1. From the Windows taskbar, click ***Start*** > ***Settings*** > ***Control Panel*** > ***Touchware***. The ***Touchware*** window displays.
2. If a single display is connected to the CIC Pro center, proceed to step 7.
3. If a second display is connected to the CIC Pro center, including one touchscreen display, go to the next step.
4. From the ***TouchWare Properties*** window, click ***Multiple Monitors***.
5. Click ***Map Touch Screens*** then follow the on screen instructions to properly map the displays.
6. Click ***Show Monitor IDs*** to verify mapping settings. A green-colored dot displays in the lower right-hand corner of a display to indicate that it is a touchscreen display. An orange-colored dot in the lower right-hand corner of the display indicates a non-touchscreen display.
7. Click the ***Calibrate*** tab.
8. Click the ***Calibrate*** button to calibrate the screen.
9. Follow the onscreen instructions to touch each of the targets displayed.
10. Click ***Done*** to close the ***TouchWare Properties*** window.
11. Close the ***TouchWare*** window.

Setting the time zone

NOTE

To change the time zone, daylight saving time, time-of-day, or the date on a CIC Pro center using v4.0.x or v4.1.1 software or later, see the CIC Pro Clinical Information Center Service Manual that was provided with your equipment.

1. Disconnect the CIC Pro center from the Unity Network IX and MC networks.
2. "Log on to the Administrator mode" on page 4-4.
3. From the Windows system tray, double-click the 7:24 AM (***time***) icon. The ***Date/ Time Properties*** window displays.

4. Click the ***Time Zone*** tab.
5. Click the down arrow next to the time zone setting to display a list of time zones.
6. Select your time zone.
7. Verify the ***Automatically adjust clock for daylight saving changes*** box is NOT checked.

CAUTION

Do NOT select the ***Automatically adjust clock for daylight saving changes*** check box. You must manually make Daylight Saving Time changes in the monitoring system. This change may affect the Unity time and date parameter of some patient data and FD data corruption.

8. Click ***Apply*** to apply your changes.

   NOTE

   Do NOT make any changes on the ***Internet Time*** or *Date & Time* tab.

9. Click ***OK*** to close the window.
10. Reboot the CIC Pro center. From the Windows taskbar, click ***Start*** > ***Shut Down*** > ***Restart*** and press ***Enter***.

CAUTION

LOSS OF FULL DISCLOSURE DATA — Failure to reboot the CIC Pro center after changing the time zone results in: 1) The loss of stored full disclosure data. 2) The discontinuance of full disclosure data collection. 3) The inability to access the full disclosure function.

11. Run the Check Central utility to ensure that there are no time zone or network errors. See page 5-3 for instructions.

Setting the time-of-day or the date

All the CIC Pro centers connected to the Unity Network IX and MC networks must all use the *same* time zone setting. Before making any changes to the time zone, time-of-day, or the date settings, you must make sure the time zone and Daylight Saving time (DST) settings match for all of the CIC Pro centers on the Unity Network.

NOTE

To change the time zone, daylight saving time, time-of-day, or the date on a CIC Pro center using v4.0.x or v4.1.1 software or later, see the CIC Pro Clinical Information Center Service Manual that was provided with your equipment.

This section describes the procedures required to set the time and date of a CIC Pro center using v5.0 software or later:

- "Display the time and date window"
- "Set the time-of-day or the date"

Pre-configuration requirements

If you need to change the time zone or daylight saving time (DST) settings, be sure to change the time zone and DST settings *before* you change the time-of-day or the date settings.

Log on to the Webmin service interface

If not already logged on to the Webmin service interface, see "Log on to the local Webmin service interface" on page 4-6 or "Log on to the remote Webmin service interface" on page 4-6.

Display the time and date window

1. From the Webmin application window, click ***Configuration*** (if the ***Configuration*** window is not already displayed).

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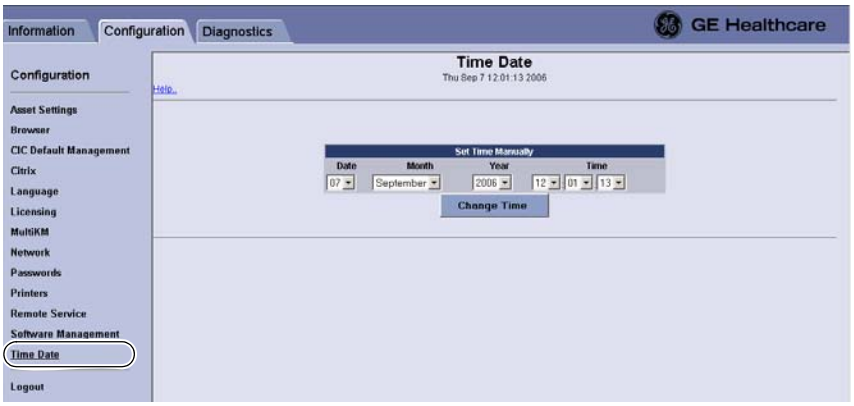
2. From the ***Configuration*** window, click the ***Time Date*** link. The ***Time Date*** window displays.



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Set the time-of-day or the date

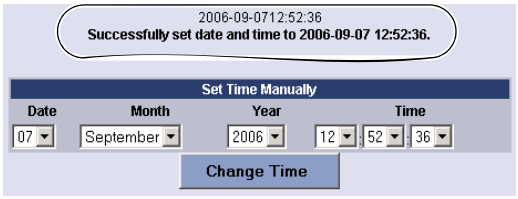
CAUTIONS

NETWORK DEVICE TIME SYNCRONIZATION — When adding a new device (e.g., CIC Pro center) to the Unity Network, the existing devices on the Unity Network will synchronize to the the new device's time. To prevent potential time synchronization issues, you should set the new device's time to be as close to the time used by the existing devices on the Unity Network (e.g., within a few seconds).

RESTART AFTER ADVANCING THE TIME SETTING — When advancing the time 76 hours or greater, you must restart the CIC Pro center to continue collecting full disclosure data. If you do not restart the CIC Pro center, full disclosure data collection stops.

Complete the following procedure to set the time-of-day or the date:

1. Under ***Date***, ***Month***, and ***Year***, click the down arrow and choose the appropriate information from the displayed list.
2. Under ***Time***, click the down arrow and choose the appropriate time-of-day (hours: minutes:seconds) from the displayed list.
3. Click ***Change Time*** to update your changes. A message similar to the following displays:



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Configuring the print location of non-real-time patient data

You can configure specific categories of non-real-time patient data to print to a local laser printer or to the bedside patient monitor's current Print Window configuration. You can also prevent non-real-time patient data from being printed by disabling the CIC Pro center's menu bar print button.

NOTE

- The patient data categories available to print are determined by the licensed features and functions activated on your CIC Pro center.
- You must configure the laser printer and bedside monitor print settings before you can configure the print location of the patient data categories.
- The bedside monitor only prints the categories of patient data it supports.
- Consult with your Clinical Application Specialists (CAS) or hospital staff about the use of this function and if it should be used with your configuration.

Pre-configuration requirements

Local laser printer configuration requirements

If you are printing to a local laser printer, the complete the following procedures *before* you configure the print location of specific patient data categories:

1. "Installing or deleting a network laser printer" on page 5-29.
2. Configure the CIC Pro center's ***Printer/Writer*** settings. See "Configure the CIC Defaults settings" on page 5-47.
3. "Setting the laser printer default paper size" on page 5-76.

Bedside patient monitor print configuration requirements

If you are printing to the bedside patient monitor's default printer, complete the following procedures *before* you configure the print location of specific patient data categories:

- Verify the CIC Pro center's ***Print Window s***ettings are configured. See "Configure the Telemetry Unit Defaults Settings" on page 5-56. Under ***Default Location for this CIC***, see the ***Print Window*** setting.

Log on to the Webmin service interface

If not already logged on to the Webmin service interface, see "Log on to the local Webmin service interface" on page 4-6 or "Log on to the remote Webmin service interface" on page 4-6.

Display the Printers window

1. From the Webmin application window, click ***Configuration*** (if the ***Configuration*** window is not already displayed).

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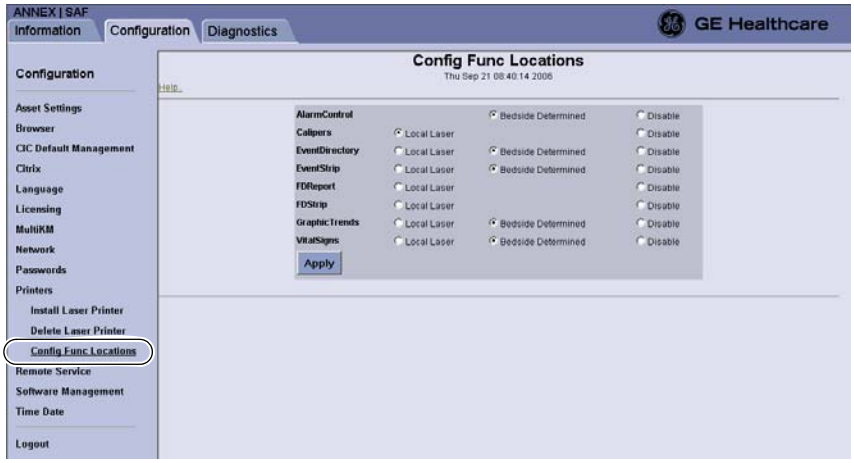
2. From the ***Configuration*** window, click the ***Printers*** link. Then click the ***Config Func Location*** link. The ***Config Func Location*** window displays:



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Set the print location settings

1. For each patient data category, change the print location setting:

Config Func Location print location settings	
Option	Function
Local Laser	Print only to the *Full Disclosure* or *Laser* printer configured in the *CIC Setup* > *CIC Defaults* > *Printer/Writer* settings. If a laser printer is not configured in the *Printer/Writer* settings, you cannot print from the selected patient data category. The print button appears dimmed and cannot be selected from the CIC Pro center menu bar.
Bedside Determined	Ignore the *Full Disclosure* or *Laser* printer configured in the *CIC Setup* > *CIC Defaults* > *Printer/Writer* settings and attempt to send a remote print request to the bedside patient monitor. **NOTE** ■ The current configuration of the ***Print Window*** determines the print location for the bedside patient monitor. See "Configure the Telemetry Unit Defaults Settings" on page 5-56. Under ***Default Location for this CIC***, see the ***Print Window*** setting. ■ Depending upon the variation of the CIC Pro center's network configuration and the patient data category selected to print, some bedside monitors will ignore their ***Print Window*** configuration settings. As a result, the requested patient data will not print. ■ If the bedside patient monitor does not support the remote print request for the selected patient data category, the print button is disabled for that patient data category.
Disable	Disable the print button located in the CIC Pro center's menu bar for the selected patient data category (e.g. *Calipers*). The print button appears dimmed and cannot be selected from the CIC Pro center menu bar.

2. Click ***Apply*** to apply your changes. The ***Printers*** window lists the results of

your configuration changes.

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NOTE

Any changes to ***Setup CIC*** printer settings will be over-written with any printer settings made in Webmin.

Configuring a keyboard and mouse group

The ***MultiKM*** license allows you to connect a minimum of one keyboard and one mouse to a group of centralized and configured CIC Pro centers.

NOTE

To prevent temporary loss of navigation control in a configured keyboard and mouse group, you should *always* have a redundant navigation control device connected in each configured group. A redundant navigation control device includes one or more of the following:

- A touchscreen display connected to a second CIC Pro center in the configured keyboard and mouse group.
- A second keyboard and mouse connected to a second CIC Pro center in the configured keyboard and mouse group.

NOTE

If you connect more than one mouse to a configured mouse group, always position the additional mice on a flat surface. Otherwise erratic mouse movements and behaviors may result.

NOTE

The use of ***Multimouse*** and ***MultiKM*** names appear in both this manual and in the software application. Please be aware that these names refer to the same licensed software application, ***MultiKM***.

With the ***MultiKM*** license activated, you can do the following tasks:

- Move the mouse across all of the CIC Pro centers in the group.
- Support right and left mouse clicks and scroll wheel movement.
- Access any CIC Pro center's display screen or enter text into any of the CIC Pro center's text fields in the group.

This section describes the procedures required to configure a CIC Pro center keyboard and mouse group:

- "Pre-configure the CIC Pro centers".
- "Configure a keyboard and mouse group".
- "Adding a CIC Pro center to an existing keyboard and mouse group".
- "Dividing a mouse and keyboard group into two groups".
- "Combining two keyboard and mouse groups into one group".
- "Troubleshooting MultiKM license activation failures"

Pre-configure the CIC Pro centers

This section describes the procedures you must complete on every CIC Pro center you want to configure into a keyboard and mouse group:

- "Gather one or more sets of mice and keyboards".
- "Identify the CIC Pro center Computer Name and MultiKM license status".

Gather one or more sets of mice and keyboards

When configuring a keyboard and mouse group, you can use one or more sets of mice and keyboards:

- You must connect a mouse and keyboard to every CIC Pro center in the group, later removing all but one set once you have configured the keyboard and mouse group.
- You can use a pair of mice and keyboards across multiple CIC Pro centers. Just connect or disconnect the mouse and keyboard from each CIC Pro center as you configure a keyboard and mouse group.

Identify the CIC Pro center Computer Name and MultiKM license status

This section describes the procedures required to identify the ***Computer Name*** and the activation status of each CIC Pro center you want in a keyboard and mouse group:

- Log onto the Webmin service interface.
- Display the Licensing window.

Log onto the local Webmin service interface

If not already logged on to the Webmin service interface, see "Log on to the local Webmin service interface" on page 4-6.

Display the Licensing window

1. From the Webmin application window, click ***Configuration*** (if this window is not already displayed).

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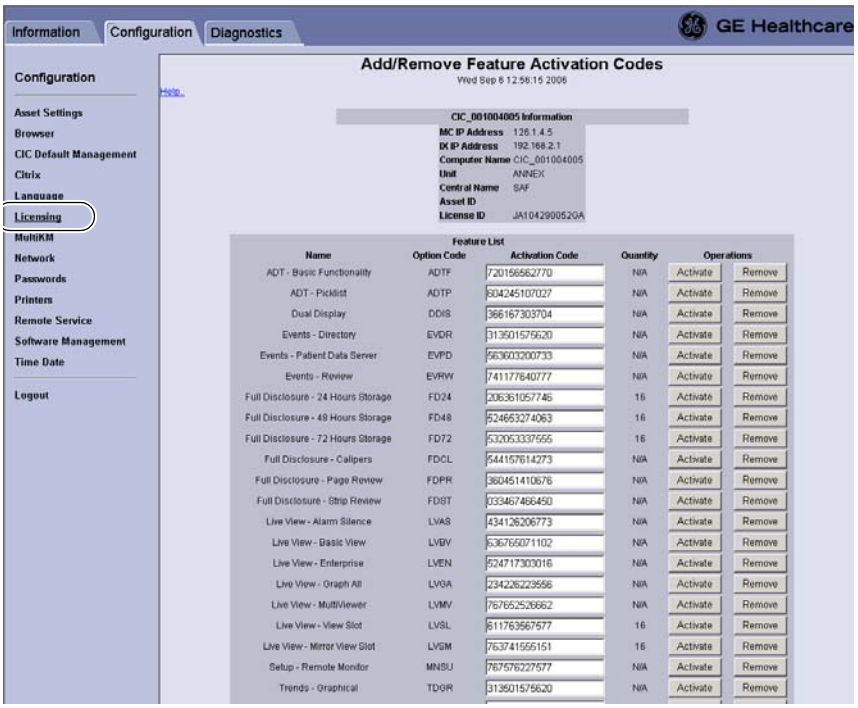
2. From the ***Configuration*** window, click the ***Licensing*** link. The ***Licensing*** window displays.


Information
Configuration
Diagnostics
GE Healthcare
Configuration
Asset Settings
Browser
CIC Default Management
Citrix
Language
Licensing
MultiKM
Network
Passwords
Printers
Remote Service
Software Management
Time Date
Logout
Add/Remove Feature Activation Codes
Wed Sep 6 12:56:15 2006
CIC_001004005 Information
MC IP Address 126.1.4.5
IX IP Address 192.168.2.1
Computer Name CIC_001004005
Unit ANNEX
Central Name SAF
Asset ID
License ID JA104290052GA
Feature List
Name
Option Code
Activation Code
Quantity
Operations
ADT - Basic Functionality ADTF 720156562770 N/A Activate Remove
ADT - Picklist ADTP 604245107027 N/A Activate Remove
Dual Display DDIS 366167303704 N/A Activate Remove
Events - Directory EVDR 313501575620 N/A Activate Remove
Events - Patient Data Server EVPD 563603200733 N/A Activate Remove
Events - Review EVRW 741177640777 N/A Activate Remove
Full Disclosure - 24 Hours Storage FD24 206361057746 16 Activate Remove
Full Disclosure - 48 Hours Storage FD48 524663274063 16 Activate Remove
Full Disclosure - 72 Hours Storage FD72 532053337555 16 Activate Remove
Full Disclosure - Calipers FDCL 544157614273 N/A Activate Remove
Full Disclosure - Page Review FDPR 360451410676 N/A Activate Remove
Full Disclosure - Strip Review FDST 033467466450 N/A Activate Remove
Live View - Alarm Silence LVAS 434126206773 N/A Activate Remove
Live View - Basic View LVBV 636765071102 N/A Activate Remove
Live View - Enterprise LVEN 624717303016 N/A Activate Remove
Live View - Graph All LVGA 234226223556 N/A Activate Remove
Live View - MultiViewer LVMV 767652526662 N/A Activate Remove
Live View - View Slot LVSL 611763567577 16 Activate Remove
Live View - Mirror View Slot LVSM 763741555151 16 Activate Remove
Setup - Remote Monitor MNSU 767576227577 N/A Activate Remove
Trends - Graphical TDGR 313501575620 N/A Activate Remove

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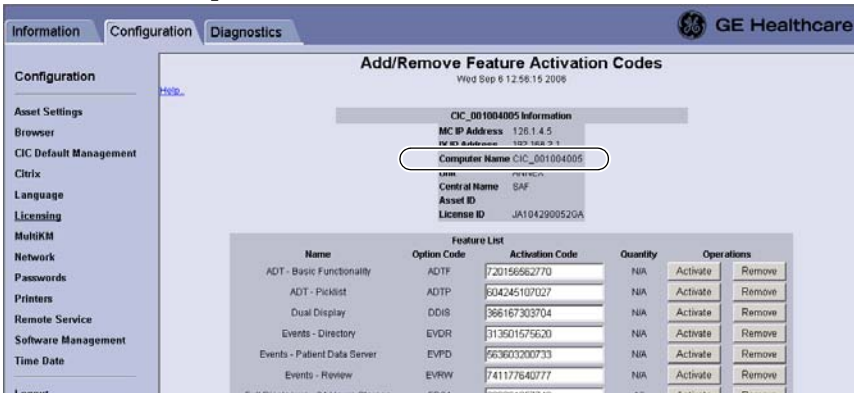
Document the Computer Name for each CIC Pro center

1. Document the ***Computer Name*** of the CIC Pro center.



2. Write the ***Computer Name*** on a label and apply the label to the front bezel of each display screen. This will help you configure the display monitors of a MultiKM keyboard and mouse group.

   NOTE

   Be sure to apply a ***Computer Name*** label to both the primary (***1***) and secondary (***2***) displays.

Verify the MultiKM license is activated

Complete the following procedure to verify the MultiKM license is activated on each CIC Pro center you want in the keyboard and mouse group:

1. From the ***Licensing*** window, use the vertical scroll bar to scroll down the list of license names.
2. Next to the ***System Utilities - MultiKM*** license name, verify the ***Activation Code*** field displays an activation code:
   - If an activation code is displayed, the ***MultiKM*** license has been activated on this CIC Pro center.
   - If an activation code is not displayed, the ***MultiKM*** license has not been activated on this CIC Pro center. You must activate the license on this CIC Pro center before you can configure it into a keyboard and mouse group. See "Activating software licenses" on page 5-13.
3. Repeat this procedure for each CIC Pro center you are configuring into a keyboard and mouse group.

Configure a keyboard and mouse group

After you identified the ***Computer Name*** and activated the ***MultiKM*** license (if required) on each CIC Pro center, the following procedures are required to configure a keyboard and mouse group:

- "Log on to the local Webmin service interface".
- "Display the MultiKM window" on page 5-99.
- "Start the Multimouse application" on page 5-99
- "Setup a keyboard and mouse group".

- "Verify the Multimouse application is running on each CIC Pro center in the group".

Log on to the local Webmin service interface

NOTE

You cannot enable, disable, or configure the ***Multimouse*** application from a remote location. You can only perform these tasks while you are locally seated at the CIC Pro center and logged on to the local webmin service interface.

If not already logged on to the Webmin service interface, see "Log on to the local Webmin service interface" on page 4-6.

Display the MultiKM window

1. From the Webmin application window, click ***Configuration*** (if this window is not already displayed).

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2. From the ***Configuration*** window, click the ***MultiKM*** link. The ***MultiKM Configuration*** window displays.

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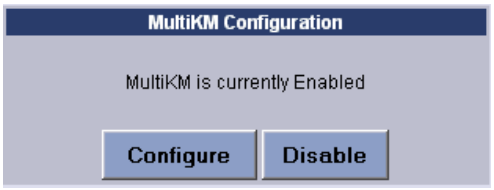
Start the Multimouse application

Complete the following procedure to start the ***Multimouse*** application on each CIC Pro center you want to add to the keyboard and mouse group:

1. From the ***MultiKM Configuration*** window, click ***Enable***. The following message displays.



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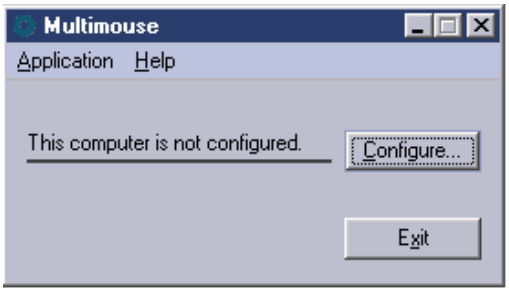
2. Complete one of the following tasks:
   - To disable the ***MultiKM*** application on this device, click ***Disable***.
   - To setup a keyboard and mouse group, click ***Configure***. The ***Multimouse*** application window displays.



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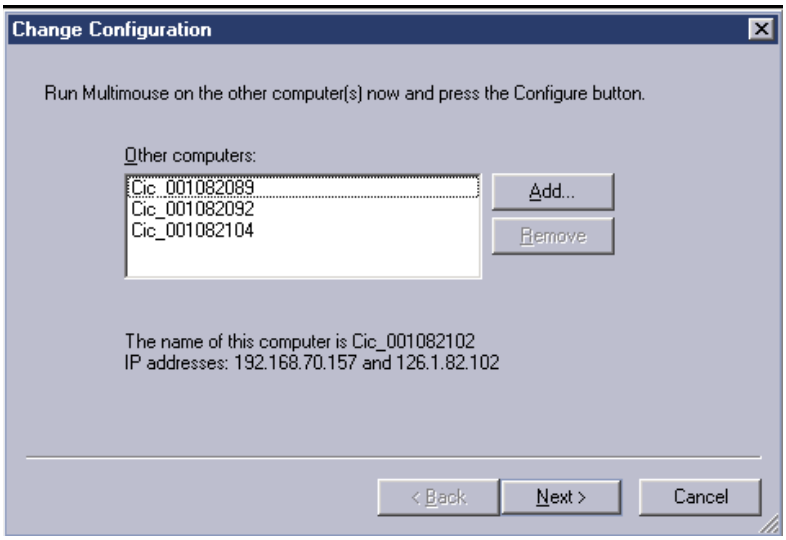
3. Repeat step 1 to step 2 on each CIC Pro center you want in this group.

Setup a keyboard and mouse group

Complete the following procedure to setup a keyboard and mouse group:

1. From the ***Multimouse*** application window, click ***Configure***. The ***Change Configuration*** window displays the list of computer names of available centralized CIC Pro centers that have the ***Multimouse*** application enabled.



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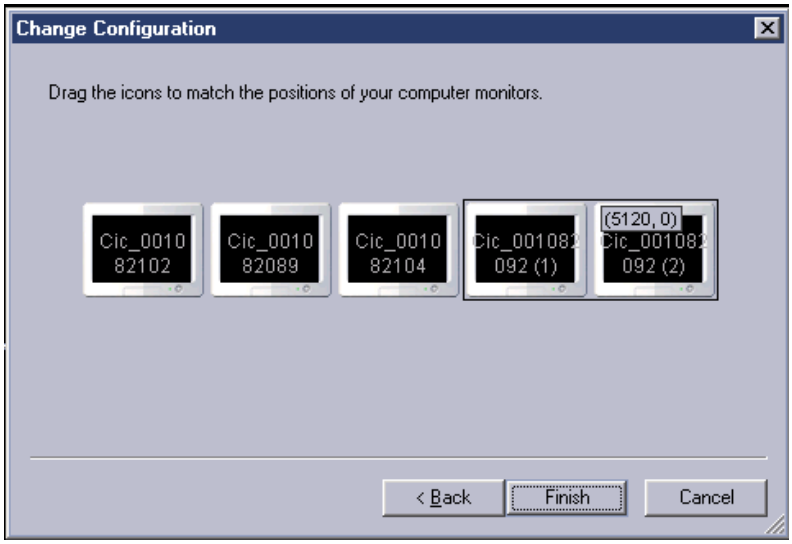
2. Verify the computer name of the CIC Pro centers you want to add to or remove from a group are displayed in the list.
3. Remove any names of the CIC Pro centers you do not want included in this group:
   a. Under ***Other Computers***, click the computer name of the CIC Pro center you want to remove.
   b. Click ***Remove***.
   c. Repeat step a and b to remove additional CIC Pro centers from this group.
4. Click ***Next***. A window displays a linear configuration of the centralized CIC Pro center monitor displays.



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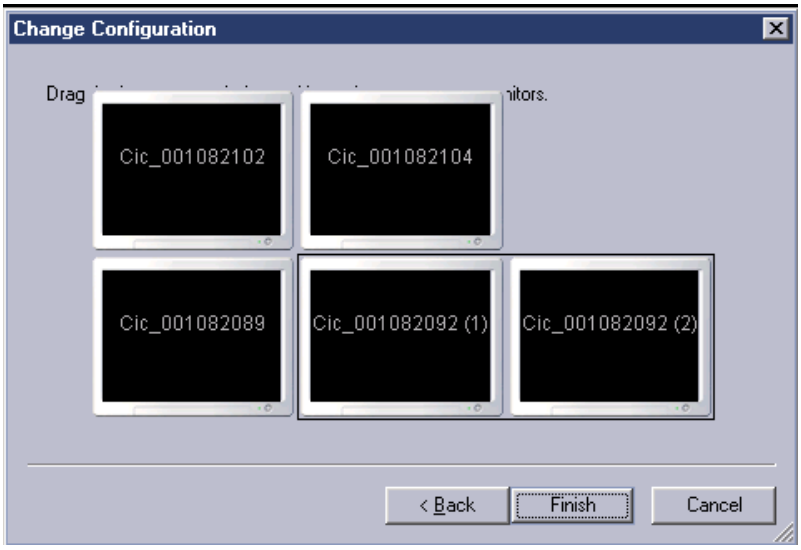
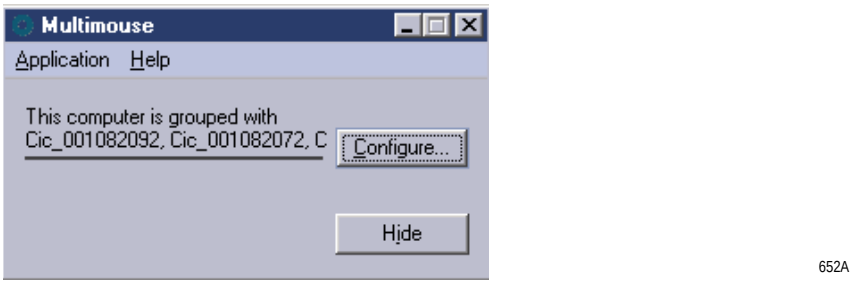
5. Arrange (click and drag) the location of the computer names to match the physical layout of the CIC Pro center display monitors in this group.

NOTE

CIC Pro centers with a secondary display will move together.



6. Click ***Finish***. A message similar to the following displays:



7. Click ***Hide*** to hide the ***Multimouse*** window. In general, the ***Multimouse*** application should be running on all of the CIC Pro centers in this keyboard and mouse group. However, you should verify that the ***Multimouse*** application is running on each CIC Pro center in the group.

Verify the Multimouse application is running on each CIC Pro center in the group

Complete the following procedure to verify the ***Multimouse*** application is running on each CIC Pro center in the keyboard and mouse group:

1. Look for the ***Multimouse*** application icon (while the CIC Pro center is running) in the bottom right-hand corner of the display screen.
2. Verify the mouse pointer moves into each of the display screens in the group.
3. If the mouse pointer does not move to each display screen, see "Troubleshooting MultiKM license activation failures" on page 5-106.

Adding a CIC Pro center to an existing keyboard and mouse group

At any time, you may add one or more CIC Pro centers to an existing keyboard and mouse group.

Complete the following procedures to add a CIC Pro center to an existing keyboard and mouse group:

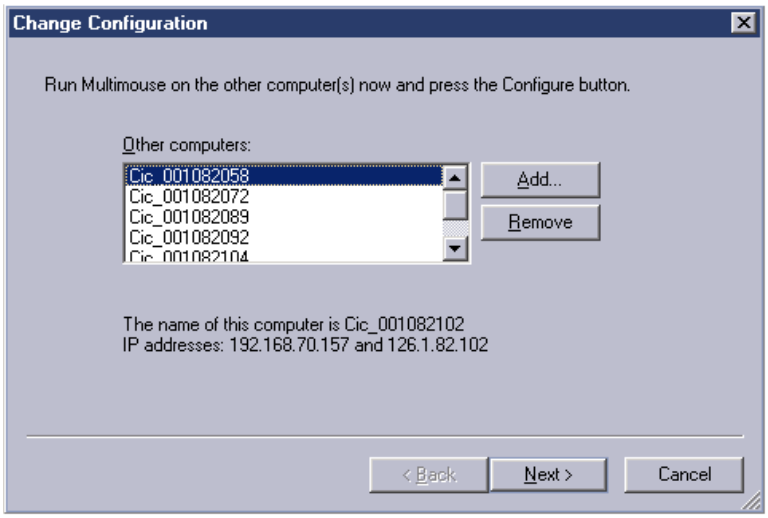
1. At each of the CIC Pro centers you want to add to the keyboard and mouse group, complete the following procedures:
   a. "Identify the CIC Pro center Computer Name and MultiKM license status" on page 5-96.
   b. "Verify the MultiKM license is activated" on page 5-98.
   c. "Log on to the local Webmin service interface" on page 5-99.
   d. "Start the Multimouse application" on page 5-99.
2. At any one of the CIC Pro centers that are already in this keyboard and mouse group, complete the following procedures:
   a. "Start the Multimouse application" on page 5-99.
   b. "Setup a keyboard and mouse group" on page 5-100.
   c. "Verify the Multimouse application is running on each CIC Pro center in the group" on page 5-102.

Dividing a mouse and keyboard group into two groups

At any time, you may divide a single mouse and keyboard group into two groups (e.g., Group 1 and Group 2).

1. Note the computer names of the CIC Pro centers located in the group (e.g., A, B, C, D, E, and F).
2. Determine how you want to divide the single CIC Pro center group into two groups (e.g., Group 1: A, B and C and Group 2: D, E and F).
3. Go the CIC Pro center A.
4. "Log on to the local Webmin service interface" on page 5-99.
5. "Start the Multimouse application" on page 5-99. The ***Multimouse*** application window displays.

6. Click ***Configure***. The ***Change Configuration*** window displays a message similar to the following:



Create Group 1

1. From the ***Change Configuration*** window, remove the names of the CIC Pro centers you do not want included in Group 1:

   NOTE

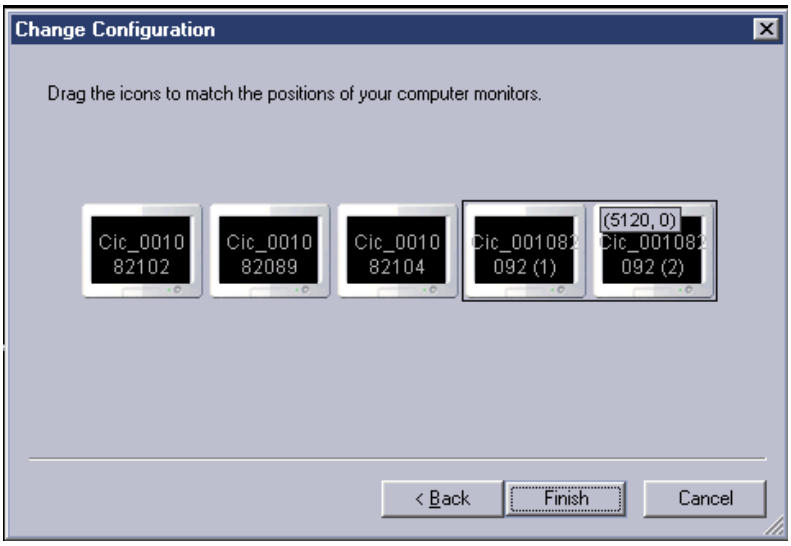
   Because the primary CIC Pro center is the device that has the mouse and keyboard connected to it, the computer name of this device will not be displayed in the ***Other computers*** list. This prevents you from accidentally removing the only device with the mouse and keyboard from a keyboard and mouse group.

   a. Under ***Other Computers***, click the computer name of the CIC Pro center you want to remove from the group (e.g., D).

   b. Click ***Remove***.

   c. Repeat step a and step b to remove additional CIC Pro centers from this group (e.g., E and F).

2. From the ***Change Configuration*** window, click ***Next***. A window displays a linear configuration of the centralized CIC Pro center monitor displays.



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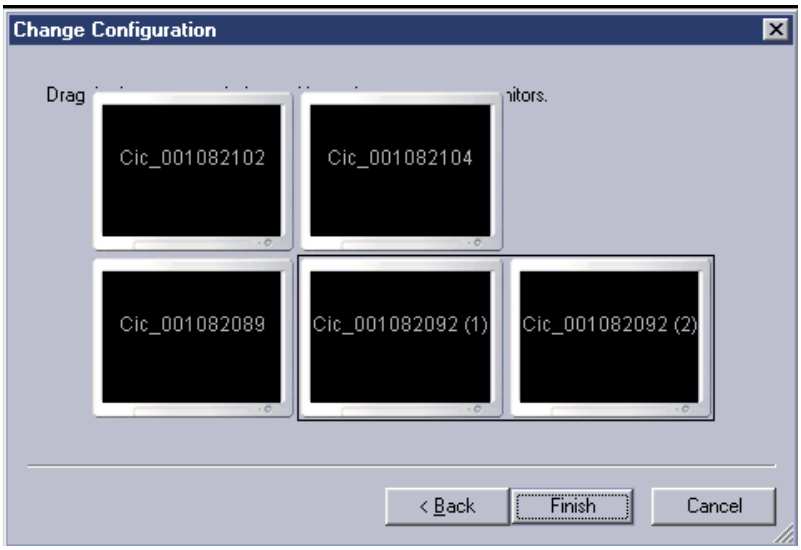
3. Arrange (click and drag) the location of the computer names to match the physical layout of the CIC Pro center display monitors in this group.

NOTE

CIC Pro centers with a secondary display will move together.



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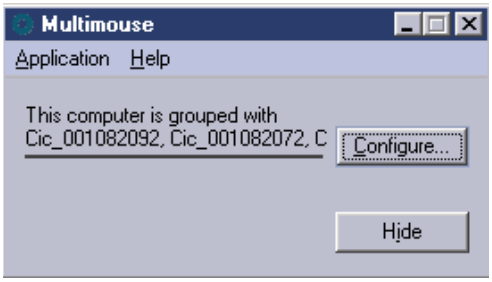
4. Click ***Finish***. A message similar to the following displays:



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5. Click ***Hide*** to hide the ***Multimouse*** window. You just created your first group (e.g., Group 1: A, B, and C).
6. "Verify the Multimouse application is running on each CIC Pro center in the group". See page 5-102.

Create Group 2

1. Determine which CIC Pro center in Group 2 will be the primary device and connect a mouse and keyboard to it.
2. From any one of the CIC Pro centers that will be in Group 2 (e.g., D, E, or F), "Start the Multimouse application" on page 5-99.
3. "Configuring a keyboard and mouse group" on page 5-95.
4. "Verify the Multimouse application is running on each CIC Pro center in the group" on page 5-102.

Combining two keyboard and mouse groups into one group

At any time, you may combine two keyboard and mouse groups into one group:

1. Identify the computer groups you want to combine (e.g., Group 1: A, B, C and Group 2: D, E, F).
2. Go to CIC Pro center A.
3. "Log on to the local Webmin service interface" on page 5-99.
4. "Start the Multimouse application" on page 5-99. The ***Multimouse*** application window displays.
5. Click ***Configure***. The ***Change Configuration*** window displays.
6. Complete step 2 to step 5 on CIC Pro centers D, E, F, B and C.
7. Go to CIC Pro center A and verify that all the CIC Pro center computer names are listed.
8. Arrange (click and drag) the location of the computer names to match the physical layout of the CIC Pro center monitor displays in this group.
9. Click ***Hide*** to hide the ***Multimouse*** application window. The ***Multimouse*** application should be active on all of the CIC Pro centers in the configured keyboard and mouse group.
10. "Verify the Multimouse application is running on each CIC Pro center in the group" on page 5-102.

Troubleshooting MultiKM license activation failures

If the ***MultiKM*** license activation fails on any one of the CIC Pro centers in a group. The ***Multimouse*** application will work for a maximum of one hour.

Complete the following procedure to resolve a ***MultiKM*** license activation failure:

1. Look in the bottom right-hand corner of the display screen for the failed ***MultiKM*** license icon with the red slash through it. This icon indicates that the ***MultiKM*** license has failed.
2. Remove the CIC Pro center where ***MultiKM*** license failed out of the group.
3. Go to any other CIC Pro center in the group.
4. "Log on to the local Webmin service interface" on page 5-99.
5. "Start the Multimouse application" on page 5-99. The ***Multimouse*** application window displays.
6. Click ***Configure***. The ***Change Configuration*** window displays.
7. Under ***Other Computers***, click the computer name of the CIC Pro center that has a failed MultiMouse license. Then, click ***Remove*** to remove this CIC Pro center from the group.
8. Click ***Hide*** to hide the ***Multimouse*** application window.

Backing up the configuration settings

Once the CIC Pro center is installed and configured, use the Webmin service interface to backup the CIC Pro center configuration to a remote location according to “Backup or restore the CIC Pro center configuration” on page 7-13. Backing up the configuration settings will simplify a system restore.

Completing the Checkout Procedures

Before using the CIC Pro center in a patient environment, you must verify proper operation of this device in the patient care and networking environments.

1. Log off or exit any open service interfaces (e.g., Webmin browser, command-line utilities, etc.).
2. Proceed with the “Configuration checkout procedures” on page 9-12.

6 Maintenance

Maintenance schedule

Manufacturer responsibility

WARNING
Failure to implement a satisfactory maintenance schedule may result in equipment failure and present health hazards. The sole responsibility for performing the recommended maintenance schedule rests with the individuals, hospitals, or institutions utilizing the device. The manufacturer does not in any manner assume the responsibility for performing the recommended maintenance schedule, unless an Equipment Maintenance Agreement exists. GE service personnel may, at their discretion, follow the procedures provided in this manual as a guide during visits to the equipment site.

Manufacturer recommendations

To make sure the CIC Pro center hardware remains in proper operational and functional order, a proper maintenance schedule must be observed.

The manufacturer recommends that the following maintenance be performed by service personnel: (1) Upon receipt of the equipment. (2) Every 12 months thereafter. (3) Every time the unit is serviced.

- System Resource Management
- Visual inspection
- Cleaning
- Electrical safety tests
- Screen calibration. See “Calibrating the primary or secondary display screens” on page 5-81.
- Checkout procedures

The manufacturer recommends that the following maintenance be performed by service personnel as specified below:

- Replace the hard drive every three years. See “Replacing the hard drive” on page 8-18.

PM form

For the latest PM form associated with this product, contact GE Service. Make a copy of the GE Unity Network CIC Pro center PM form and use the copy as a guide as you go through this section of the manual. The PM form can then be archived for reference after you have finished all the steps required to completely test the equipment.

If, for any reason, any of the procedures or tests results are not within the indicated standards, contact GE Technical Support. See the “How to Reach Us...” page provided with this manual.

System Resource Management

A system resource indicator is provided in the CIC Pro toolbar next to the clock at the bottom of the screen to indicate the current usage of key system resources. As these resources change, the system will provide a real-time indicator as to the "health" of the system.

NOTE

Placing the cursor over the indicator reveals a tool-tip for the indicator.

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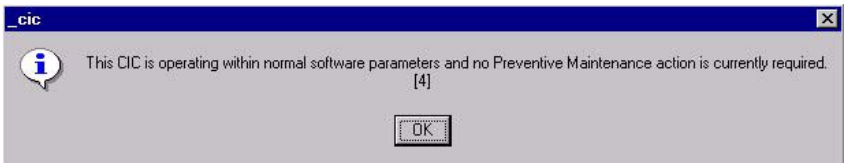
Double-clicking the system resource indicator displays current system resource information, along with a numeric value associated with accumulated CIC Pro time of use since the last system resource reset.

NOTE

The following figure shows system resource information for a green, or normal, condition.


_cic
This CIC is operating within normal software parameters and no Preventive Maintenance action is currently required.
[4]
OK

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The system resource indicator should be checked periodically, and appropriate action should be taken. Until a typical system resource consumption rate is determined, the system resource indicator should be checked monthly.

Depending upon the color of the indicator, different actions are required:

System Resource Indicator	System Resource Condition	Action Required
Green	Normal — System resources are within normal parameters	No service action is currently required
Yellow — [value equal or greater than 300]	Advisory — System has been running continuously for at least 300 days without a system resource reset. System resources may be running low	Schedule a system resource reset
Yellow — [value less than 300]	Advisory — System resources are running low	Contact GE Service.
Red — [value equal or greater than 365]	Low — System has been running continuously for at least 365 days without a system resource reset. System resources may be running low	Perform a system resource reset at the earliest possible opportunity as part of annual preventative maintenance
Red — [value less than 365]	Low — Available system resources are running critically low.	Contact GE Service.
Any color other than green — [value less than 10]	Low — Available system resources are running critically low.	Contact GE Service immediately. Be prepared to provide log files. For more information, refer to "Access Log Files" on page 6-4.

Access Log Files

When you contact GE Service, you may have to provide required log file information.

1. In Webmin, select *Diagnostics* > *Run CIC Cmd*.
2. In the *CIC Cmd* command text field, type **mei_cic_logcomp.exe<Space>-c**. Allow the executable to run for 5 to 7 minutes.
3. In Webmin, select *Diagnostics* > *Download Logfiles*.
4. On the *Download Logs* screen, select *CIC Logs from Flash*.
5. Download the log file named <*yyyymmdd_hhmmsssc.bfp*> for the time you began the log file request.
6. Send this log file to GE Service for further investigation.

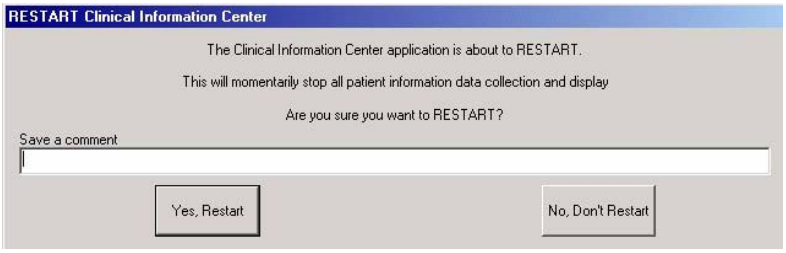
System Resource Reset

WARNINGS

LOSS OF MONITORING — Provide alternate patient monitoring or close observation before performing the system resource reset procedure. Beds displayed on the CIC Pro will not be monitored during the system resource reset.

After system resource reset is complete and the monitoring function at the CIC Pro has been restored (about 30 seconds), verify the correct monitoring state and alarm function.

1. Provide alternate patient monitoring for the beds displayed on the CIC Pro.
2. Shutdown the system. "Safe shutdown or restart procedure" on page 7-12.
3. If desired, type a comment about the system resource reset event into the *Save a comment* field.


RESTART Clinical Information Center
The Clinical Information Center application is about to RESTART.
This will momentarily stop all patient information data collection and display
Are you sure you want to RESTART?
Save a comment
Yes, Restart
No, Don't Restart

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4. Click *Yes, Restart*. The CIC Pro will restart, and monitoring function will be restored in approximately 30 seconds.
5. System resources are now fully restored and a green system resource indicator should be displayed.

Visual inspection

Inspect the equipment and its components: (1) carefully prior to installation. (2) Once every 12 months thereafter. (3) Each time the equipment is serviced.

- General condition: Carefully inspect the equipment for physical damage to the case, the display screen, and the controls. Do not use the equipment if damage is determined. Refer damaged equipment to qualified service personnel.
- Connectors: Inspect all external connectors for damaged pins, prongs and connector housings. Refer damaged equipment to qualified service personnel for repair. Ensure that all connections are properly seated and secure.
- Cable insulation: Inspect all cables, insulation, strain-reliefs and connectors for damage, cracks or degradation. Refer damaged equipment to qualified service personnel for repair.
- Display: Inspect the display face for marks, scratches, or other damage. Physical damage to a touchscreen face may jeopardize its performance. Have the display replaced by qualified service personnel if necessary.
- Fans: Inspect all cooling fans in the CIC Pro center to make sure they are in good working order and are not clogged with dust. These fans draw outside air into the unit to cool internal components.
- Safety labels and inscriptions: Check that safety labels and inscriptions on the device are clearly legible.
- Mounting hardware: Check for loose or missing screws on the mounting hardware.

Cleaning

External surfaces

Procedure

NOTE

For additional information, refer to the “How to Reach Us...” page provided with this manual for contact information. Also see the operator’s manuals provided with each handheld and patient monitoring device to safely clean or disinfect telemetry transmitters, acquisition modules, patient monitors, ECG cables, and leadwires.

NOTE

Clean the exterior surface on a regular basis in compliance with your institution’s infection control and biomedical engineering department.

Complete the following procedure to clean the exterior surfaces of this equipment:

1. For cleaning all displays, including touchscreen and standard displays, do the following:
   a. Turn off the power to the touchscreen and standard displays before you start cleaning the displays.
   b. Wipe the exterior with a soft lint-free cloth, lightly moistened with household glass cleaner.
2. For cleaning the equipment, wipe the exterior with a soft lint-free cloth, using the following solution as recommended in the APIC Guidelines for Selection and Use of Disinfectants (1996):
   - Sodium hypochlorite (5.2% household bleach) minimum 1:500 dilution (minimum 100 ppm free chlorine) and a maximum 1:10 dilution.
   - Any sodium hypochlorite wipe product that meets the above guidelines can be used.

     NOTE

     Wring excess disinfectant from wipe before using.

   NOTE

   Any contact of the disinfectant solutions with metal parts may cause corrosion.
3. Wipe off cleaning solutions with a clean, lightly moistened cloth.
4. Dry thoroughly with a dry lint-free cloth and let air dry for at least 30 minutes.

   NOTE

   Drying times may vary based on the environmental conditions.
5. Take care not to let fluid “pool” around connection pins. If this should happen, blot dry with a soft lint-free cloth.
6. Do not use excessive drying techniques, such as oven, forced heat, or sun drying.

Cautions

Use the following precautions to prevent damaging the equipment:

- Never immerse the device in any liquid.
- Do not pour or spray any liquid directly on the device or permit fluid to seep into connections or openings.
- Never use conductive solutions, solutions that contain chlorides, wax, or wax compounds to clean the device.
- Never use solutions or products that contain the following:
  - Any type of Ammonium Chloride such as, but not limited to, Dimethyl Benzyl Ammonium Chloride and Quaternary Ammonium Chloride solutions.
  - Abrasive cleaners or solvents of any kind.
  - Acetone
  - Keytone
  - Betadine
  - Alcohol-based cleaning agents
  - Sodium salts
- Never autoclave or steam clean the device.
- Always use household glass cleaner to clean the touchscreen or standard displays.

Impact or results of improper cleaning products and processes

The following consequences can occur if you do not follow the cautionary guidelines when cleaning the equipment:

- Product discoloration.
- Melting, dulling, or distorting of the device case.
- Brittle and breaking device case.
- Blurring the lettering on label text.
- Equipment malfunction or failure.
- Void warranty.

Cleaning products to avoid

Cleaning products known to cause the types of problems listed previously include, but are not limited to:

- Sani-Cloth® Wipes
- Ascepti® Wipes
- HB Quat®
- Clorox® Wipes (they do not contain bleach)
- Over-the-counter detergents (e.g., Fantastic®, Tilex®, etc.)

Products that contain active ingredients and solutions similar to these products should be avoided.

Internal components

CIC Pro center

Procedure

The fan, fan intakes, and internal components require cleaning to remove accumulated dust.

1. Complete the “Safe shutdown or restart procedure” on page 7-12 to shut down the CIC Pro center.
2. Turn off, and unplug, all equipment.

   NOTE

   When unplugging, pull on the plug, not the cord.

   WARNING

   In order to remove power from the CIC Pro center, disconnect the power cord from the wall outlet. The power switch on the back panel of the processor box does not disconnect the CIC Pro center from AC power.

   Additionally, wait 40 seconds after disconnecting the CIC Pro center power cord from the wall outlet. The unit remains energized for a period of time after shutdown.

3. Remove the CIC Pro center cover. See “Disassembly guidelines” on page 8-12 and “Removing or replacing the cover” on page 8-16.
4. Using a compressed air duster, carefully blow out any dust that may have accumulated on internal components, fans and fan intakes.

   The fans and fan intakes usually accumulate the most dust. Accumulated dust can clog the fans and fan intakes and prevent proper cooling.
5. Replace the CIC Pro center cover.

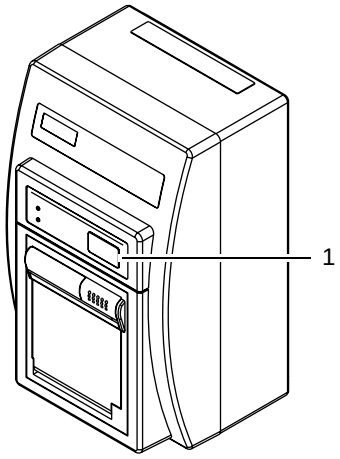
Cautions

1. Verify all equipment is turned off and unplugged.
2. Disconnect all peripheral devices from the CIC Pro center.
3. Remove the CIC Pro center cover. See “Disassembly guidelines” on page 8-12 and “Removing or replacing the cover” on page 8-16.
4. Use a compressed air duster recommended for computers and electronics.

Changing writer paper

Complete the following procedure to replace the 2-inch digital writer paper:

1. Press the button on the top of the writer to open the writer door.



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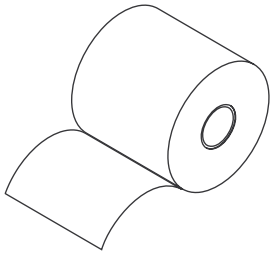
2. Remove the old spool and install a new paper roll so it unrolls from the bottom.



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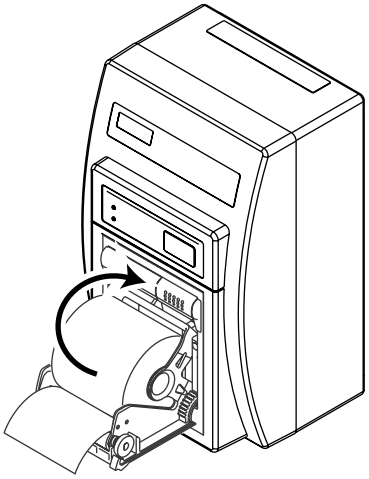
3. Close the door. Make sure the paper protrudes from the opening.



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4. Test the writer by initiating a graph strip.
5. Remove the test graph by tearing downward.

7 Troubleshooting

Overview

The symptoms and solutions in this chapter represent only a few of the faults that you may encounter and are not intended to cover every possible problem that may occur.

A systematic approach to the diagnosis of problems as well as a general understanding of the architecture, both hardware and software, of the CIC Pro center are essential to ensure successful troubleshooting. GE recommends formal service training before repairs are attempted. These troubleshooting procedures combined with training provide the service technician with skills necessary to service and repair this device, in the event of a malfunction.

Required tools and equipment

The following tools and equipment are required to troubleshoot this device:

- Standard set of hand tools.
- Digital multimeter.

Troubleshooting methods

The following methods are available for troubleshooting problems with this device:

- “Symptoms of trouble” on page 7-3.
- “Error messages” on page 7-7.
- “Power source verification” on page 7-7.
- “Diagnosing problems using the Service interfaces” on page 7-8.

Troubleshooting tips

Before starting any detailed troubleshooting, you should always check for the following conditions:

- Verify all cable connections are secure and properly seated.
- Verify all components are connected properly.
- Verify all devices are properly powered.
- Verify the electrical wall outlet is operating properly.
- Verify correct Ethernet and IP addresses are used.

NOTE
Also consult the documentation provided with each component of the system, for additional troubleshooting information.

Symptoms of trouble

This section describes the recommended actions required to resolve the following symptoms of trouble:

- "A blank display screen or the device does not power up" on page 7-3.
- "A red-colored or blue-colored display screen" on page 7-3.
- "The clinical application display colors are not correct" on page 7-4.
- "The Browser does not function" on page 7-4.
- "The print button is dimmed and unselectable" on page 7-6.
- "The Admit Request Info button is dimmed and unselectable" on page 7-6.
- "The keyboard and mouse do not work in a configured MultiKM keyboard and mouse group" on page 7-6.

A blank display screen or the device does not power up

Complete the following procedure to resolve this problem:

1. Verify all the display screens and the device are plugged into the electrical wall outlet.
2. Verify that all cables are properly seated.
3. Verify that all components are connected correctly.
4. Verify the electrical wall outlet is operating properly. See the "Power outlet test" on page 9-6.
5. Verify the power cords are operating properly. See "Power cord and plug test" on page 9-6.
6. If the symptoms are not resolved, complete the following steps:
   a. Shutdown, turn off, and unplug the CIC Pro center from the electrical wall outlet.
   b. Complete the "Electrostatic discharge (ESD) precautions" on page 8-13.
   c. Remove the cover and ensure all internal components are properly seated. See "Removing or replacing the cover" on page 8-16.

A red-colored or blue-colored display screen

WARNING
LOSS OF MONITORING — If the monitoring at the CIC Pro center is temporarily interrupted, alternate monitoring devices or close observation of the patients must be used until the monitoring function at the CIC Pro center is restored.

Indications of a loss of the monitoring function at the CIC Pro center are as follows.

- RED SCREEN indicates the CIC Pro center application is restarting itself and patient monitoring at the CIC Pro center is *not* occurring. The monitoring function at the CIC Pro

center will automatically resume in less than 30 seconds. No user action is required.

- BLUE SCREEN indicates the Windows® operating system has a functional error and patient monitoring at the CIC Pro centerr is NOT occurring. If the CIC Pro center does not automatically restart after 90 seconds, the monitoring function at the CIC Pro center will not resume until you turn off the power to the CIC Pro center and then turn the power back on. The monitoring function should resume in approximately 90 seconds

Once the monitoring function at the CIC Pro center has been restored, you should verify the correct monitoring state and alarm function.

The clinical application display colors are not correct

If the colors in the CIC Pro center application are not correct, complete the following procedure:

1. "Log on to the Administrator mode" on page 4-4.
2. From the Windows taskbar, click ***Start*** > ***Settings*** > ***Control Panel*** > ***Display***.
3. Click the ***Settings*** tab. The ***Display Properties*** window displays.
4. Under ***Colors***, verify the color setting is ***Medium (16-bit)***.
5. For secondary display, see "Configuring a secondary display" on page 5-72.

The Browser does not function

A parsing defect in the Microsoft Internet Explorer browser can, in some cases, prevent access to certain sites. Also, the level of security present on the CIC Pro center server prevents running applications from the Windows desktop taskbar. The combination of these two factors contribute to loss of browser function under certain circumstances.

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If the Browser does not function, one of the following procedures may resolve this problem:

- "Connect to Webmin" on page 4-7 (verify the URL).
- "Add a forward slash to the IP address" on page 7-5.
- "Add a suffix to a Muse Web Application" on page 7-5.
- "Contact GE Technical Support for Statview Administration Configuration Utility connection errors" on page 7-5.

■ “Contact GE Technical Support for other connection errors” on page 7-5.

NOTE

If you are using Patient Viewer Version 1, the level of security present on the CIC Pro center server currently prevents browser connection to Patient Viewer.

Add a forward slash to the IP address

In some cases, adding a forward slash (/) to the end of an internet address in the address field can allow access to a web page.

Add a suffix to a Muse Web Application

Button on the MUSE Web server introduction page allow you to select a display with, or without, frames. These buttons attempt to access a function disallowed by the CIC Pro center. As a result, frame or no frame connection errors occur.

To resolve this problem, you need to add the following suffixes to the MUSE Web address:

Description	Suffix	Example
Frame (with borders)	Museweb.dll?InitializeDefaultPage?Frames=1	http://museserver1/Museweb.dll?InitializeDefaultPage?Frames=1
No Frame (without borders)	Museweb.dll?InitializeDefaultPage?Frames=0	http://museserver1/Museweb.dll?InitializeDefaultPage?Frames=0

Contact GE Technical Support for Statview Administration Configuration Utility connection errors

No known CIC Pro center browser connection problems are known to exist associated with the Statview Administration Configuration Utility. If problems are encountered, contact GE Technical Support.

Contact GE Technical Support for other connection errors

If you encounter connection problems you are not able to resolve, contact GE Technical Support. Reference MDOC724.

Unable to connect to the Citrix server

If you encounter connection problems between the CIC Pro center’s Citrix client and the facilities’ Citrix server, see the documentation provided with the Citrix application you are using.

NOTE

Previous product versions of the iPanel are also known as Launch Pad.

The print button is dimmed and unselectable

If the print button is dimmed and unselectable when viewing stored patient data, complete the following procedure:

1. Verify the ***Printer/Writer*** settings for the ***Laser*** and ***Full Disclosure*** printers are configured in the ***Setup CIC*** > ***CIC Defaults*** window. See "Configure the CIC Defaults settings" on page 5-47.
2. Verify the bedside monitor supports this type of print. See the Printing chapter of the "CIC Pro™ Clinical Information Center Operator's Manual" for a list of parameter data available for printing.

The Admit Request Info button is dimmed and unselectable

NOTE

The ***ADT-Picklist*** license must be activated on the CIC Pro center before you can retrieve patient demographic information from a networked database.

Two Admission Discharge Transfer (ADT) configurations can exist:

- Prism IS: Legacy existing technology.
- Picklist: CIC Pro center v5 and later technology.

If both ADT configurations are being run simultaneously, only the Prism IS information is accessible. Picklist isn't. You must choose to run only one ADT configuration.

The keyboard and mouse do not work in a configured MultiKM keyboard and mouse group

If the primary CIC Pro center (the CIC Pro center with the single mouse and keyboard connected to it) goes down or offline for any reason, you will not have any way to interact with the remaining CIC Pro centers in that configured ***MultiKM*** keyboard and mouse group.

To prevent temporary loss of navigation control in a configured keyboard and mouse group, you should always have a redundant navigation control device connected in each configured group. A redundant navigation control device includes one or more of the following:

- A touchscreen display connected to a second CIC Pro center in the configured keyboard and mouse group.
- A second keyboard and mouse connected to a second CIC Pro center in the configured keyboard and mouse group.

Unable to display the Cntrl+Alt+Delete window on the targeted CIC Pro center

When working in a configured ***MultiKM*** keyboard and mouse group, a keyboard and mouse must be connected to the target CIC Pro center you want to apply the **Cntrl +Alt + Delete** function.

Error messages

The following table describes error messages that may appear during operation and the recommendations for resolving these errors.

NOTE

Alarm messages from the CIC Pro center, monitors, and telemetry transmitters are explained in the operator's manuals for each device.

Messages		
Message	Probable cause	Recommended action
Service Monitor Battery	The CIC Pro center CPU battery has a low charge and requires replacement.	Complete "Replacing the CPU battery" on page 8-17.
Request time out, cancelling request	Communication to the server has failed and your search request is cancelled.	Wait a few seconds and retry your search request.
Server off network	The Hospital Information System (HIS) is either not available or not present.	1. There are network problems and you cannot perform a search now. 2. Wait a few seconds and retry your search request.
Error response returned from picklist server	The information from the server is not valid and cannot be used.	1. Wait a few seconds and retry your search request. 2. If this does not resolve the problem, try entering different search criteria.
No matches found for the picklist request	There are no valid matches for your search request.	Try entering different search criteria.
Invalid picklist query	Your search request is not valid.	Try entering different search criteria.
Picklist server is not available	■ The server is not present on the network. ■ There are network problems and you cannot perform a search now.	Contact your Information Technology department.

Power source verification

The CIC Pro center and display monitors are powered from an electrical wall outlet. If the devices are not performing as expected, complete the following power source tests to verify proper operation of the electrical wall outlet and the power cords:

- Complete the "Power outlet test" on page 9-6.
- Complete the "Power cord and plug test" on page 9-6.

Diagnosing problems using the Service interfaces

The CIC Pro center provides diagnostic utilities and data logs you can use to help troubleshoot device errors or problems. These diagnostic utilities and data logs are accessed via the following service interfaces:

- ***Service Tools*** utilities.
- Webmin (via local or remote access).
- Command-line utilities.

Service Tools utilities

The following ***Service Tools*** utilities are used for troubleshooting:

- "Diagnostic and verification tests" on page 9-15.
- "Log Files" on page 4-14.
- "System Tools" on page 4-15.

Webmin

See "Webmin service interface" on page 4-6.

Command-line utilities

WARNING
Command-line utilities are intended for use *only* by qualified personnel with training and experience with their use. Do *not* "experiment" with any commands other than those shown in this manual. The consequences of misuse include loss of patient data, corruption of the CIC Pro center or operating system software, or disruption of the entire Unity Network MC network.

List the beds with full disclosure

NOTE
These functions are new to CIC Pro centers running v5 or later.

1. "Log on to the command-line utility" on page 4-17.
2. At the command prompt, type **fdcmd list**, then the following modifiers, as required:

   For example: **fdcmd<Space>list <Space>-b** and press **Enter.**

   fdcmd list [**-a**] [**-b**] [**-d**] [**-f**] [**-g**] [**-l**] [**-m**][**-s**] [**-u**], where:.

-a	For all servers/units on the network (can take awhile).
-b "UNIT|BED"	For a specific bed (active only).

-d	Include discharged sessions (do not use with -b).
-f "UNIT|BED"	Filter output to specified bed (do not use with -s, -b).
-g	Do NOT try to ping each server on IX (use with -s only).
-l ["UNIT|CIC"]	For a specific server. If no server provided, then the local server is used.
-m	List mapping of beds to servers (applies multi-FD rule).
-s	List server information with IX ping check.
-u ["UNIT"]	For a specific unit. If no unit provided, then current unit is used.

A typical listing would include the following data:

List Network				
IP Address	Device Type	Secondary Address	Care Unit: Device Name	Patient Name
126.0.17.206	TELE TOWER	(2000)	"SICU: TOWR7e0011"	
126.0.17.206	TELE BED	(2001)	"SICU:214-A"	"JACKSON"
126.0.6.77	TRAMSCOPE	(2000)	"ICU:BED1"	"HUNTER"
126.0.6.61	TRAMSCOPE	(2000)	"ICU:BED4"	"BLAND"
126.0.177.21	CENTRAL	(2000)	"ICU:CS4"	

IP Address

Uniquely identify each device on the network, whether the device is manufactured by GE, or is part of the hospital information system.

Device Type

Includes the following devices:

- ***CENTRAL***: CIC Pro center, Centralscope central station
- ***MONITOR***: Eagle, Solar, Tramscope monitors
- ***MRT2***: Monitoring Review Terminal 2
- ***MUSE***: MUSE system
- ***TELE BED***: Telemetry bed, CD, or APEX
- ***TELE TOWER***: Telemetry cabinet

Secondary Address

- Identify telemetry receivers in the cabinet assembly. Ignoring the base 2000 number, the last digit indicates which receiver is related to each telemetry bed.
- Identify the receivers by numbers in the cabinet assembly.

Care Unit: Device Name

Identify the device in terms more understandable to the user.

Patient Name

Identify the currently monitored patient.

Set the full disclosure modes

1. "Log on to the command-line utility" on page 4-17.
2. At the command prompt, type **fdcmd mode**, then the following modifiers, as required:

   For example: **fdcmd<Space>mode<Space>-n<Space>on** and press **Enter**.

   fdcmd mode [**-m**][**-n**] [**-s**], where:

-m [1-720]	Sets the FD minute rule.
-n [ON | OFF | 0-16]	Sets the maximum number of beds this machine will FD.
-s [ALL | LISTED | MANUAL]	Sets the FD start mode.

Ping the full disclosure server

Sends a ping message to the Full Disclosure server processes. If no Unity server name, IP address or port is specified, the local server is used.

1. "Log on to the command-line utility" on page 4-17.
2. At the command prompt, type **fdcmd ping**, then the following modifiers, as required:

   For example: **fdcmd<Space>ping<Space>-s** and press **Enter**.

   fdcmd ping [**-d**] [**-s**], where:

-d ["UNIT|CIC" | X.X.X.X:p]	Ping FDDataSvr (Database) process.
-s ["UNIT|CIC"]	Ping FDSvr (control & acquisition) process.

List current system settings

"Log on to the command-line utility" on page 4-17. At the prompt, type the following to list the current system settings that are controlled with the setflags command:

setflags -info	List the settings.

Enable use of duplicate TTX numbers

"Log on to the command-line utility" on page 4-17. At the prompt, type the following to enable or disable the use of duplicate TTX numbers:

setflags -dup on	Enable the use of duplicate TTX numbers.
setflags -dup off	Disable the use of duplicate TTX numbers.

Display waveform indicators

"Log on to the command-line utility" on page 4-17. At the prompt, type the following to display or remove waveform indicators:

setflags -mark ttx	Display TTX dropout waveform indicators.
setflags -mark all	Display all waveform indicators.
setflags -mark off	Remove all waveform indicators.

Require age selection for admit

"Log on to the command-line utility" on page 4-17. At the prompt, type the following to require age selection for telemetry admits:

NOTE

Consult with your Clinical Application Specialists (CAS) or hospital staff about the use of this function and if it should be used with your configuration.

setflags -force age on	Require an age selection for admit.
setflags -force age off	Do not require an age selection for admit.

Enable alarms

"Log on to the command-line utility" on page 4-17. At the prompt, type the following to enable or disable audible alarms for all beds in multi-patient viewer or ADU buttons:

NOTE

Consult with your Clinical Application Specialists (CAS) or hospital staff about the use of this function and if it should be used with your configuration.

setflags -all mv_audio on	Enable audible alarms for all beds in multi-patient viewer.
setflags -all mv_audio off	Disable audible alarms for all beds in multi-patient viewer.

setflags -all adu_audio on	Enable audible alarms for all beds in ADU buttons.
setflags -all adu_audio off	Disable audible alarms for all beds in ADU buttons.

Safe shutdown or restart procedure

WARNING
Beds displayed on the CIC Pro center will not be monitored while the unit is shut down. Additionally, beds admitted on a shut down CIC Pro center will display a "***NO COMM***" message when displayed at other stations.

Proper system shutdown is important. Errors can occur if the system is shut down incorrectly.

Complete the following procedure to properly shut down the system:

1. From the multi-patient viewer, click ***Setup CIC***.
2. Click the ***Service Password*** tab.
3. Type **mms_com** as the password and press **Enter**. The Windows command window displays.
4. From the Windows command prompt, type **stop** and press **Enter**.
5. From the Windows taskbar, click ***Start*** > ***Shut Down***. The ***Shut Down Windows*** window displays.
6. From the ***Shut Down Windows*** window you can log off the current user, restart the CIC Pro center or shut it down.
7. If you intend to log on immediately after shutting down, simultaneously hold down the left ***Shift*** key while clicking ***OK***. Continue holding the left **Shift** key until the log-on prompt displays.
8. If you intend to shut down the CIC Pro center, wait until the message "***It is now safe to turn off your computer***", and turn off the power using the power switch located on the back panel of the processor box.

CAUTION
EQUIPMENT DAMAGE OR DATA LOSS — Turn off the CIC Pro center power switch only when the message "***It is now safe to turn off your computer***" is display. Equipment damage or data loss can occur if this instruction is not followed.

Backup or restore the CIC Pro center configuration

NOTE

The backup portion of this section should be performed at regular intervals and whenever changes are made to CIC Pro center configuration settings. A regular backup ensures a complete system restore if it should become necessary.

Log on to the Webmin service interface

- See "Log on to the local Webmin service interface" on page 4-6 or "Log on to the remote Webmin service interface" on page 4-6.

Display the backup and restore links

1. From the Webmin application window, click ***Configuration***. The ***Configuration*** window displays.

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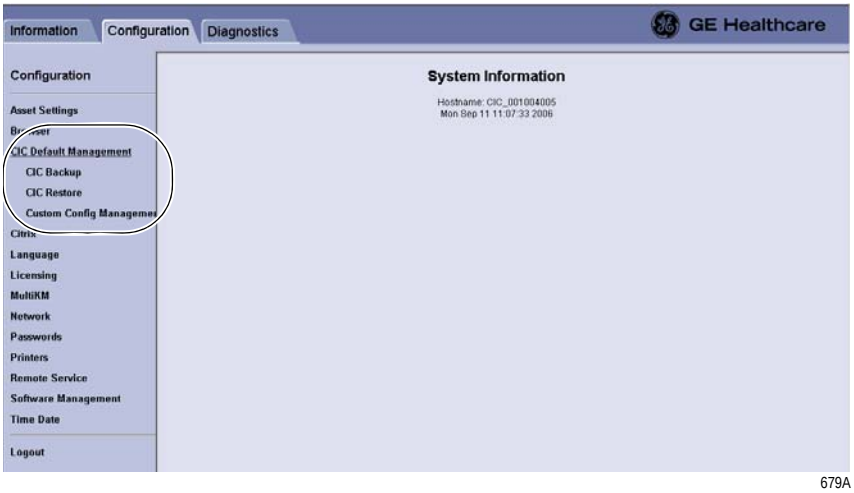
2. From the ***Configuration*** window, click the ***CIC Default Management*** link. The ***CIC Default Management*** links display.



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NOTE

See "Data module detail" on page 7-21 for a summary of the data contained in the individual modules displayed in the ***Available Tools*** list.

Planning your backup or restore strategy

When planning a backup or restore strategy in a care unit running more than one CIC Pro center, it is important to know that when a CIC Pro center starts up, it will update some of it's configuration data to match any other CIC Pro centers it finds on the care unit network. The exact data that is automatically updated in this fashion is shown in "Data module detail" on page 7-21. In general, this would be data common to the care unit that should be consistent between all the CIC Pro centers within that care unit. All other configuration data is specific to the local CIC Pro center only, and is not shared between the CIC Pro centers in the care unit.

The following examples describe how this automatic update impacts the backup or restoration process of a CIC Pro centers.

Restore a CIC Pro center in care unit running one CIC Pro center

Automatic update does not occur, and is not a factor in this situation. All configuration data written to the CIC Pro center during the restoration process remains intact, since no other CIC Pro centers exist to trigger an automatic update.

Add or upgrade a CIC Pro center in a care unit running multiple CIC Pro centers

When a CIC Pro center is added to or upgraded in a care unit already running other CIC Pro centers, configuration data common to the care unit is changed in the new or upgraded CIC Pro center, when it starts up, to match the other CIC Pro centers found in the care unit network. Configuration data specific only to the new or upgraded CIC Pro center does not change.

Restore multiple CIC Pro centers in a care unit to a previous configuration

In certain cases, it may be necessary to restore the CIC Pro centers in a care unit to a previous configuration.

1. Shut down all but one of the CIC Pro centers in the care unit. This prevents the restore from being overwritten by associated data from other CIC Pro centers running on the care unit network.

   NOTE

   The CIC Pro center application must be stopped in order to perform a restore. Because configuration data is automatically updated to match other CIC Pro centers found running in the care unit. if other CIC Pro centers are left running, when the restored CIC Pro center application starts back up, some configuration data would be overwritten by the automatic update.

2. Stop the CIC Pro center application on the one CIC Pro center left running, and perform the restore procedure. Then, restart the CIC Pro center application.
3. Start up the other CIC Pro centers, one-at-a-time. Common configuration data associated with the care unit is updated with data from the restored CIC Pro center as the other CIC Pro centers start back up.

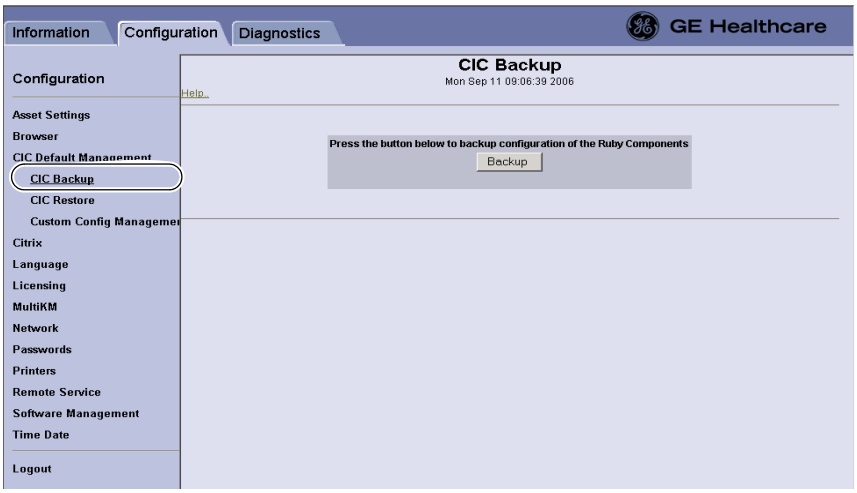
Backing up or restoring care unit default configuration settings

NOTE

The backup or restore procedure must only be completed from a remote computer.

To back up care unit default configuration settings

1. "Log on to the remote Webmin service interface" on page 4-6.
2. "Display the backup and restore links" on page 7-13.
3. Under ***CIC Default Management***, click the ***CIC Backup*** link. The ***CIC Backup*** window displays.



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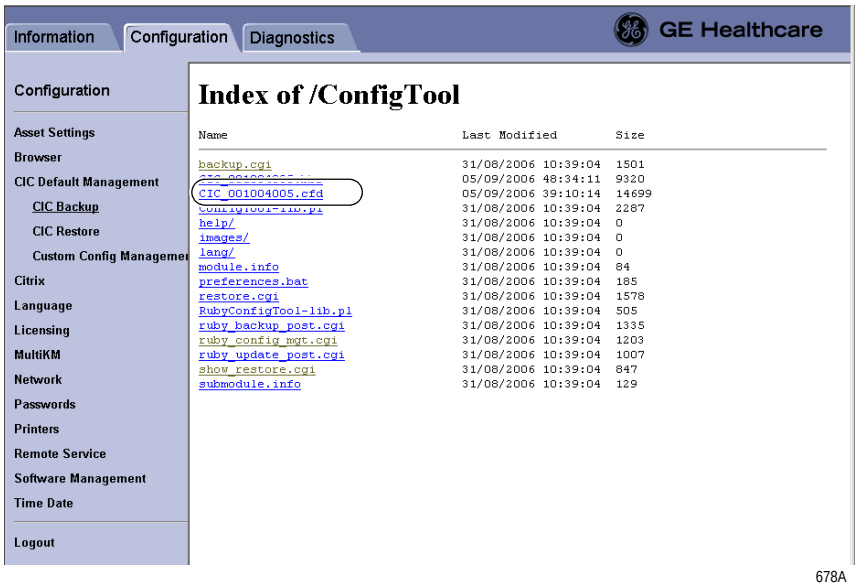
4. Click the ***Backup*** button. The default files are temporarily written to the CIC Pro center and are prepared for downloading to your local computer.



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5. Click the ***cic_xxxxxxxxx.cfd*** link to begin the download process. A file download window displays.

6. Click ***Save***. The ***Save As*** window displays.
7. Navigate to a directory on your local computer where you want to save the downloaded configuration file.
8. Click ***Save***. After the file is downloaded, the ***Download complete*** window displays.
9. Click ***Close*** to close the ***Download complete*** window.

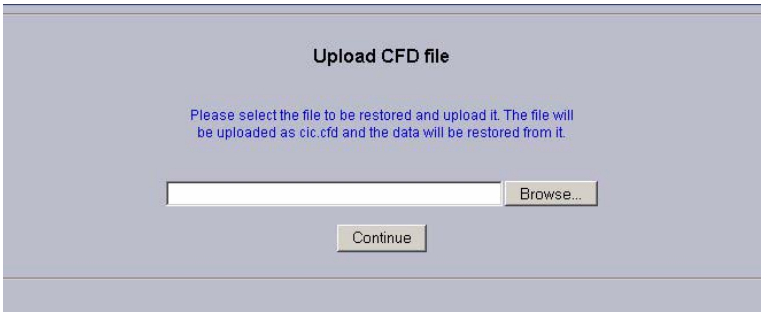
To restore care unit default configuration settings

1. Shut down all of the CIC Pro centers in the care unit.

   NOTE

   The CIC Pro center application must be stopped in order to perform a restore. Because configuration data is automatically updated to match other CIC Pro centers found running on the care unit, if other CIC Pro centers are left running, when the restored CIC Pro center application starts back up, some configuration data would be overwritten by the automatic update.

2. From the CIC Pro center you want to restore, "Log on to the remote Webmin service interface" on page 4-6.
3. Click the ***Configuration*** tab.
4. Click the ***Backup-Restore CIC Config*** link.
5. Click ***Restore***. The ***Upload CFD file*** window displays.


Upload CFD file
Please select the file to be restored and upload it. The file will be uploaded as cic.cfd and the data will be restored from it.
Browse...
Continue

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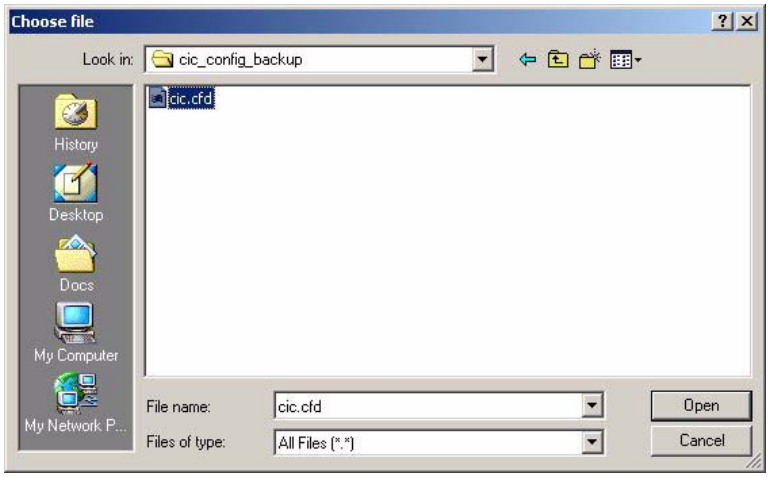
6. Click ***Browse***. The ***Choose file*** window displays.

   NOTE

   Depending upon the operating system used to run the browser, the

following download windows may be slightly different.



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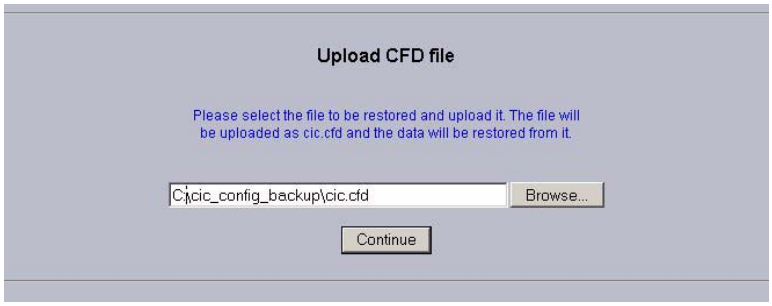
7. Navigate to the previously downloaded configuration file. Select the file and click ***Open.*** The path to the file displays in the ***Upload CFD file*** window.


Upload CFD file
Please select the file to be restored and upload it. The file will be uploaded as cic.cfd and the data will be restored from it.
C:\cic_config_backup\cic.cfd
Browse...
Continue

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8. Click ***Continue***. The configuration file is uploaded to the ***ConfigTool*** directory on the CIC Pro center.

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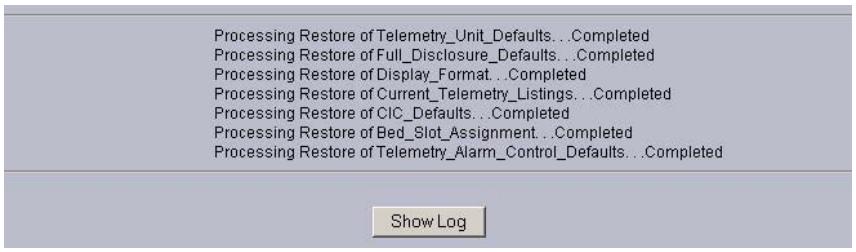
9. Click ***Restore*** to complete the configuration restore process. Progress of the restoration process is displayed.

NOTE

The CIC Pro center application must be stopped before the configuration

settings can be restored.


Processing Restore of Telemetry_Unit_Defaults. . .Completed
Processing Restore of Full_Disclosure_Defaults. . .Completed
Processing Restore of Display_Format. . .Completed
Processing Restore of Current_Telemetry_Listings. . .Completed
Processing Restore of CIC_Defaults. . .Completed
Processing Restore of Bed_Slot_Assignment. . .Completed
Processing Restore of Telemetry_Alarm_Control_Defaults. . .Completed
Show Log

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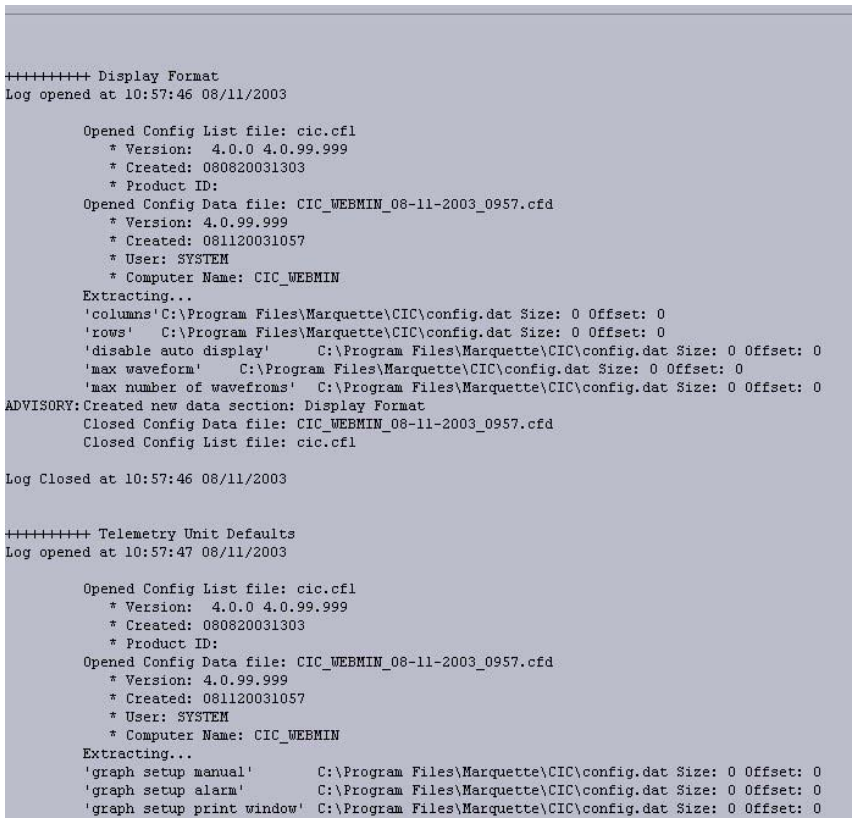
10. Click ***Show Log*** to view a summary of the completed configuration restore process.



```
+++++++++ Display Format
Log opened at 10:57:46 08/11/2003

        Opened Config List file: cic.cfl
           * Version:  4.0.0 4.0.99.999
           * Created: 080820031303
           * Product ID:
        Opened Config Data file: CIC_WEBMIN_08-11-2003_0957.cfd
           * Version: 4.0.99.999
           * Created: 081120031057
           * User: SYSTEM
           * Computer Name: CIC_WEBMIN
        Extracting...
        'columns'C:\Program Files\Marquette\CIC\config.dat Size: 0 Offset: 0
        'rows'   C:\Program Files\Marquette\CIC\config.dat Size: 0 Offset: 0
        'disable auto display'     C:\Program Files\Marquette\CIC\config.dat Size: 0 Offset: 0
        'max waveform'    C:\Program Files\Marquette\CIC\config.dat Size: 0 Offset: 0
        'max number of wavefroms'  C:\Program Files\Marquette\CIC\config.dat Size: 0 Offset: 0
ADVISORY:Created new data section: Display Format
        Closed Config Data file: CIC_WEBMIN_08-11-2003_0957.cfd
        Closed Config List file: cic.cfl

Log Closed at 10:57:46 08/11/2003


++++++++++ Telemetry Unit Defaults
Log opened at 10:57:47 08/11/2003

        Opened Config List file: cic.cfl
           * Version:  4.0.0 4.0.99.999
           * Created: 080820031303
           * Product ID:
        Opened Config Data file: CIC_WEBMIN_08-11-2003_0957.cfd
           * Version: 4.0.99.999
           * Created: 081120031057
           * User: SYSTEM
           * Computer Name: CIC_WEBMIN
        Extracting...
        'graph setup manual'       C:\Program Files\Marquette\CIC\config.dat Size: 0 Offset: 0
        'graph setup alarm'        C:\Program Files\Marquette\CIC\config.dat Size: 0 Offset: 0
        'graph setup print window' C:\Program Files\Marquette\CIC\config.dat Size: 0 Offset: 0
```

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11. Restart the CIC Pro center application on the CIC Pro center just restored.
12. Start up the other CIC Pro centers, one at a time. Common configuration data associated with the care unit is updated with data from the restored CIC Pro center as the individual CIC Pro centers start back up.

Backing up or restoring local custom default configuration settings

You can backup and restore any of the custom default configuration settings associated with the Single Patient Viewer applications. These configurations may be unique to each CIC Pro center and can include the following functions:

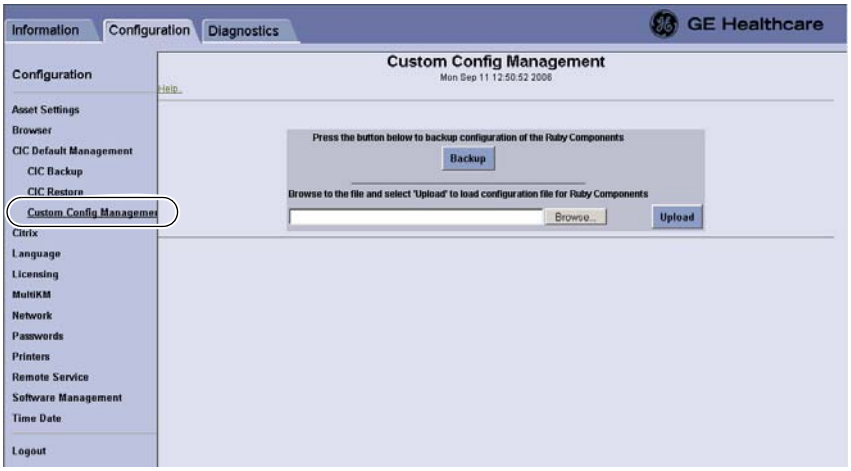
- ***FD Page***: Displayed waveforms and waveform display enhancements (e.g., ***Zoom Window***).\
- ***Graphic Trends***: Customized trend groups.
- ***Vital Signs***: Customized data sort modes.
- Menubar: Customized "***Save As Favorites***" for single or secondary display configurations.

To backup local custom default configuration settings

NOTE

The backup or restore procedures must only be completed from a remote computer.

1. "Log on to the remote Webmin service interface" on page 4-6.
2. "Display the backup and restore links" on page 7-13.
3. Under ***CIC Default Management***, click the ***Custom Config. Management*** link. The ***Custom Config Management*** window displays.



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4. Click the ***Backup*** button. The default files are temporarily written to the CIC Pro center and are prepared for downloading to your local computer.
5. Follow the on-screen instructions to right-click on the link to download the backed up defaults file. A file download window displays.
6. Click ***Save Target As....*** The ***Save As*** window displays.
7. Navigate to a directory on your local computer where you want to save the downloaded configuration file. If required, rename the file.
8. Click ***Save***. After the file is downloaded, the ***Download complete*** window displays.
9. Click ***Close*** to close the ***Download complete*** window.

To restore local custom default configuration settings

NOTE

The backup or restore procedures must only be completed from a remote computer.

1. "Log on to the remote Webmin service interface" on page 4-6.
2. "Display the backup and restore links" on page 7-13.
3. Under ***CIC Default Management***, click the ***Custom Config. Management*** link. The ***Custom Config Management*** window displays.

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4. Click the ***Browse*** button. A ***Choose file*** window displays.
5. From the ***Choose file*** window, navigate to the directory where a file from a previous backup was saved.
6. Select the backup file and click ***Open***. The backup file link displays in the ***Browse***... field.
7. Click the ***Update*** button. The CIC Pro center uploads this backup file.
8. Click the ***Logout*** link to exit the Webmin application.
9. From the Windows taskbar, click ***Start*** > ***Shutdown*** > ***Restart*** and press **Enter**. The CIC Pro center restarts and applies the restored configuration settings.

Data module detail

The following table lists summary detail information associated with data modules listed as ***Available Tools*** in the ***Backup-Restore CIC Configuration*** window.

NOTE

Items marked with * are automatically updated by other CIC Pro centers running in a care unit.

Backup-Restore CIC Configuration Data Module Detail	
Data backed up/Restored	Data Source
Telemetry Alarm Control Defaults	
Parameter Limits*	Limits.def/Limits.mei
Parameter Alarm Levels*	Param.def/Param.mei
Arrhythmia Alarm Levels*	Arrhy.def/Arrhy.mei
System Alarm Levels*	System.def/System.mei
Full Disclosure Defaults	
Report Duration*	NewTelem.def
Report Hole Location*	NewTelem.def
Include Graybar*	NewTelem.def
Include Arrhythmia Annotations*	NewTelem.def
Include Heart rate*	NewTelem.def
Line Time*	NewTelem.def
Strip Duration*	NewTelem.def
Strip Hole Location*	NewTelem.def
Full Disclosure License*	NewTelem.def
Full Disclosure Offline Storage*	NewTelem.def
Start Data Storage*	NewTelem.def
Bedlist*	Fd.all
Display Configuration	
Columns	Config.dat
Rows	Config.dat
Disable Auto Display button	Config.dat
Maximize Waveform length	Config.dat
Maximize No. of Waveforms	Config.dat

Backup-Restore CIC Configuration Data Module Detail	
Data backed up/Restored	Data Source
Current Telemetry Listings	
Telemetry Bed List*	Telebeds.all
Hardwire Bed List*	Hardwire.all
Transmitter List*	Ttx.all
CIC Defaults	
Central Name	Config.dat
Unit Name	Config.dat
ECG1WaveForm	Config.dat
Waveform2	Config.dat
Waveform3	Config.dat
Waveform4	Config.dat
Laser Printer	Config.dat
DDW Printer	Config.dat
FullDisclosure Printer	Config.dat
Mirror Central Display	Config.dat
Alarm Volume	Config.dat
Browser Enabled	Config.dat
Browser Status	Config.dat
ColorSetECG0	Config.dat
ColorSetECG1	Config.dat
ColorSetECG2	Config.dat
ColorSetECG3	Config.dat
ColorSetECG4	Config.dat
ColorSetECG5	Config.dat
ColorSetECG6	Config.dat
ColorSetART	Config.dat
ColorSetPA	Config.dat
ColorSetFEM	Config.dat
ColorSetCVP	Config.dat
ColorSetRA	Config.dat
ColorSetLA	Config.dat

Backup-Restore CIC Configuration Data Module Detail	
Data backed up/Restored	Data Source
ColorSetICP	Config.dat
ColorSetSP	Config.dat
ColorSetUAC	Config.dat
ColorSetUVC	Config.dat
ColorSetRESP	Config.dat
ColorSetSPO2	Config.dat
ColorSetCO2	Config.dat
ColorOption	Config.dat
Central Name	Config.data
Telemetry Unit Defaults	
Graph Set Manual	Config.dat
Graph Setup Alarm	Config.dat
Graph Setup Print Window	Config.dat
Graph Setup ECG1*	Telem.def
Graph Setup Waveform2 *	Telem.def
Graph Setup Waveform3*	Telem.def
Graph Setup Waveform4*	Telem.def
Transmitter Graph*	Telem.def
Alarm Graph*	NewTelem.def
Nurse Call Graph*	NewTelem.def
Display Lead*	Telem.def
Arrhythymia*	Telem.def
Lead Analysis*	Telem.def
ST Analysis*	Telem.def
Va Lead*	NewTelem.def
Vb Lead*	NewTelem.def
Detect pace*	Telem.def
Patient Age*	Telem.def
Transmitter Alarm pause*	Telem.def
Alarm Pause Breakthrough*	NewTelem.def
PDT*	NewTelem.def

Backup-Restore CIC Configuration Data Module Detail	
Data backed up/Restored	Data Source
Transmitter Nurse Call*	NewTelem.def
Bed Slot Assignment	
Display Format	Config.dat
Beds Configured	Config.dat
Slot Information (From Slot 0 – Slot 32)	
Row, Column and Bed Name	Config.dat
Lead_or_site, position, scroll_speed	Config.dat
Colors	Config.dat
Bed Assignment	Config.dat
Lock Status	Config.dat

Stopping a print job

You must stop a print job from the same CIC Pro center you used to send the print job to the printer.

Stop printing to a laser printer

Complete the following procedure to stop printing all print jobs sent to the laser printer:

1. From the multi-patient viewer, click ***Setup CIC*** > ***CIC Defaults***. The ***CIC Defaults*** window displays.
2. Under ***Printer/Writer***, click ***Cancel Print Jobs*** for the printer you want to stop printing to.
3. After making your selection, complete one of the following tasks from the ***CIC Defaults*** window:
   - Click ***OK*** to apply your changes and close the CIC Defaults window.
   - Click ***Cancel*** to cancel your changes and close the CIC Defaults window.
   - Click ***Apply*** to apply your changes without closing the CIC Defaults window.

Stop printing to a local digital writer

Complete the following procedure to stop printing all print jobs sent to a local digital writer:

1. Locate the digital writer.
2. Press the (**Graph Stop**) button located on the front of the digital writer to stop the print job.

8 Field replaceable units (FRUs)

Ordering parts

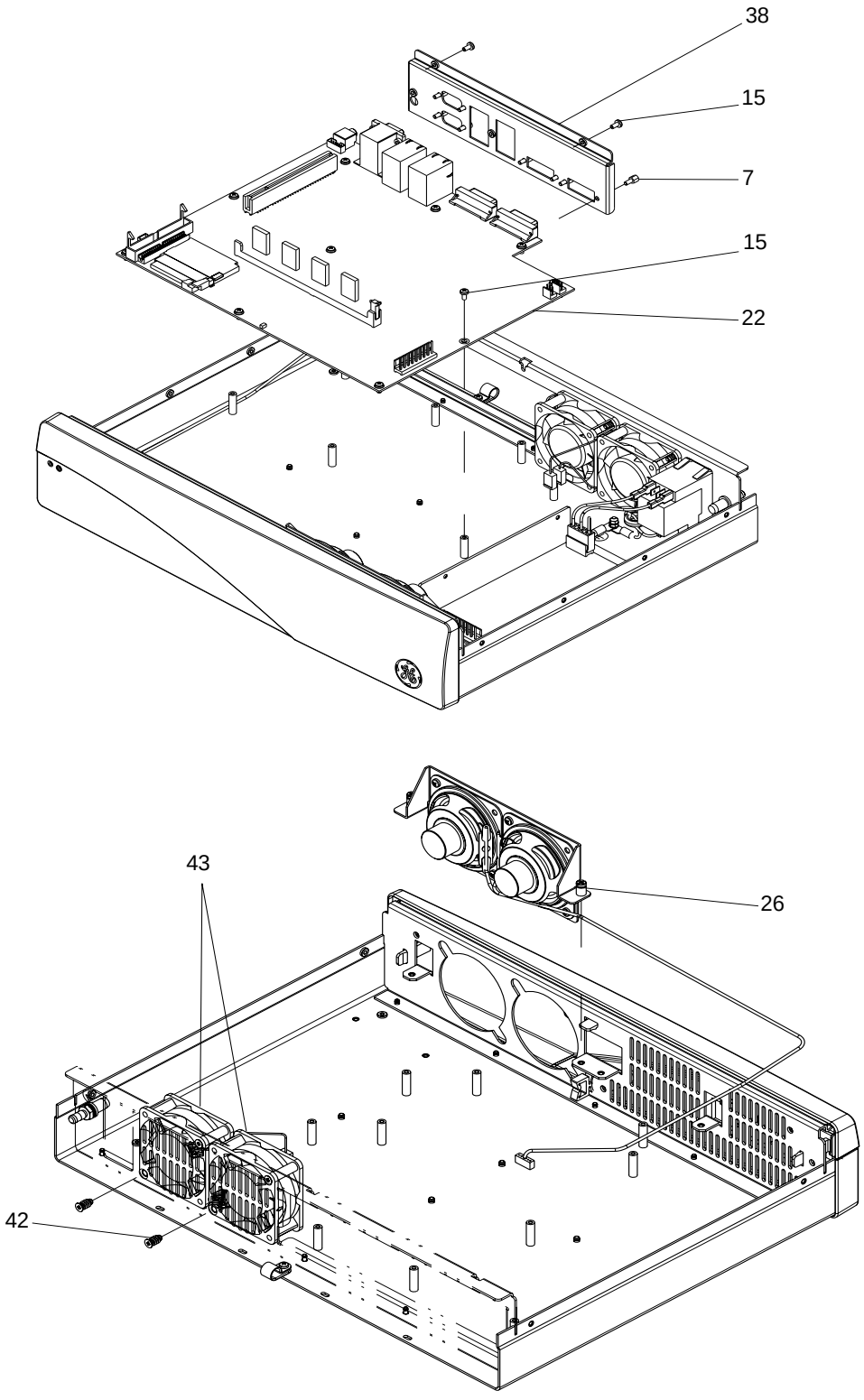
The parts lists and drawings in this chapter supply enough detail for you to order parts considered field replaceable.

If you require additional information, schematics, or troubleshooting assistance, contact GE Technical Support.

To order parts, contact Service Parts at the address or telephone number listed on the "How to Reach Us...," page found in the front of this manual.

For the latest parts information, including substitutions, obsolescence and compatibility, please visit our Parts ID Portal website at:
egems.gemedicalsystems.com/partsiduser/gems/Welcome.jsp

Exploded views



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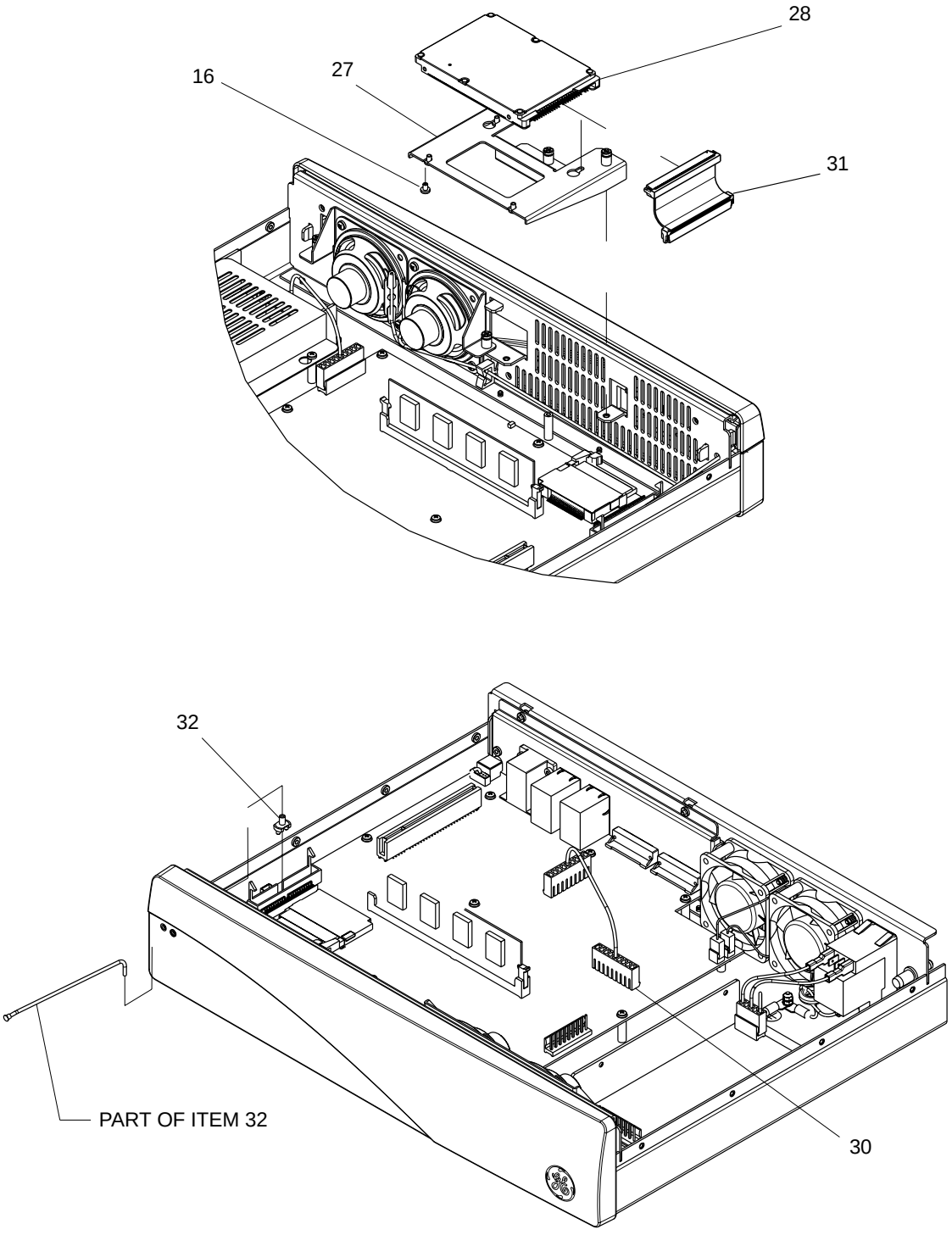
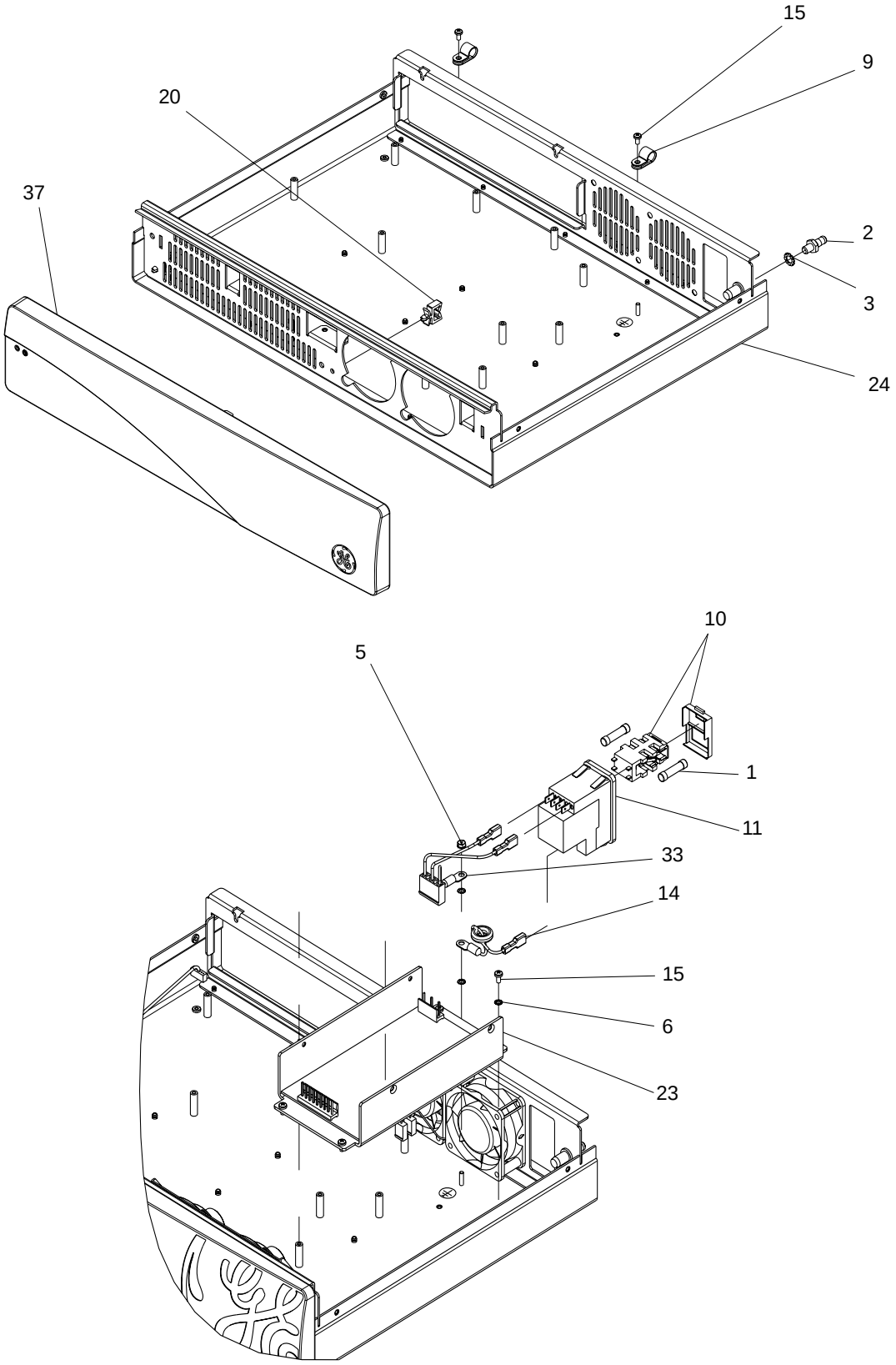
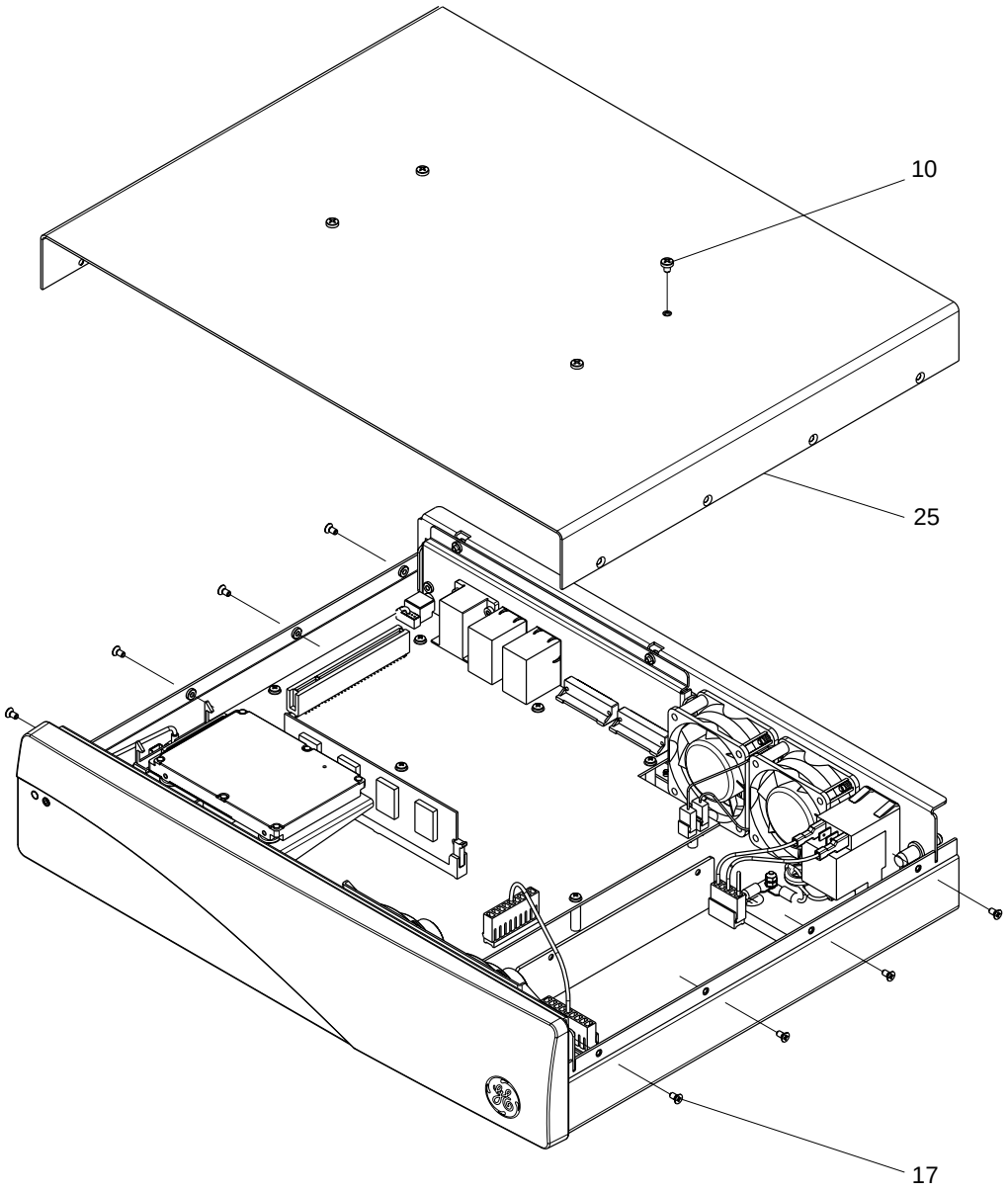


704A, 705A



702A, 707A



708A

Exploded view part list

Item Number	Part Number	Description	Qty
1	2020183-006	CIC Pro 3AG 4A SB Fuses	N/A
2		PLUG M6 EQUIPOTENTIAL	1
3		WASHER LOCK SERRATED F/M-6	1
5		NUT HEX KEPS M3 - .5 CLASS 8 ZP	1
6		WASHER LOCK M3 EXT TOOTH	2
7		JACKSCREW 4-40X.18 W/VIBRATITE	8
9		CLAMP CABLE	2
10		SCR SL BDGH 6-32 X 3/16 NYLON	4
11		AC INLET MDL CONN/SW/DUAL FZ	1
14		CBL ASM 9500 PWR INLET CHOKE	1
15		SCR MACH PNHD M3X6LG SST W/THD LOCK	19
16		SCR MACH PNHD M3X4LG SST W/THD LOCK	4
17		SCR MACH FLHD M3 X 6MM SS N8.25 GRAY	4
20		CLIP SNAP-LOK 13X4.8 SADDLE	2
22	2020183-002	FRU CIC Pro CPU	N/A
23	2020183-005	FRU CIC Pro Power Supply	N/A
24		CHASSIS CIC PRO	1
25		COVER CIC V5.0	1
26	2020183-004	FRU CIC Pro Dual Speakers	N/A
27		BRACKET CIC PRO HARD DRIVE MNT	1
28	2020183-012	FRU CIC Pro Hard Drive RoHS	N/A
30		CABLE ASSY CIC PRO POWER	1
31		CABLE ASSY CIC V5.0 HARD DRIVE	1
32	2020183-009	FRU CIC Pro Light Pipe	N/A
33		CABLE ASSY CIC PRO AC POWER	N/A
34		CABLE ASSY CIC PRO FAN	2
35	2020183-008	FRU CIC Pro Front Bezel	N/A
38		PANEL ASM CIC PRO CPU I/O	1
42		SCR FAN SELF-TAPPING FLHD	4
43	2020183-003	FRU CIC Pro Fan	N/A

Item Number	Part Number	Description	Qty
	2026420-001	CD OPR MNL CIC V5 MULTI (multilingual)	1
	2026420-002	CD SVCE MNL CIC V5 ENG	1
	2001323-001	KOSS HDM/5 COMPUTER SPEAKERS	1

Part Lists

Disaster recovery software kit

Item Number	Item Description
2030843-003	CIC V5.0.7 SFTWR RECOVERY KIT
2030843-004	CIC V5.0.8 SFTWR RECOVERY KIT

Field replaceable units

Item Number	Item Description
2020183-002	FRU CIC Pro CPU
2020183-003	FRU CIC Pro Fan
2020183-004	FRU CIC Pro Dual Speakers
2020183-005	FRU CIC Pro Power Supply
2020183-006	CIC Pro 3AG 4A SB Fuses
2020183-007	FRU CIC Pro Hardware
2020183-008	FRU CIC Pro Front Bezel
2020183-009	FRU CIC Pro Light Pipe
2020183-012	FRU CIC Pro Hard Drive RoHS

Optional components

Item Number	Item Description
*	CIC V5 SOFTWARE UPGRADE KIT (any language) *Contact the sales representative for your location.
*	19" color flat panel display with or without touchscreen display. *Contact the sales representative for your location.
XXXXXX-XXX	USB KEYBOARD KIT (see "Power cables" on page 8-10)
420649-006	KIT STARTECH 2 PT DVI VID SPLT DOM 120V (domestic DVI video splitter)
420650-009	ADPTR DVI (M) TO VGA ADAPTER
422310-001	MOUSE PAD GE
2001323-001	KOSS HDM/5 COMPUTER SPEAKERS
2006550-001	ADAPTER DB9F TO RJ-45

Item Number	Item Description
2016194-001	KIT CAT5E VIDEO SYSTEM 0-360FT 1 REMOTE VIEW
2016194-002	KIT CAT5E VIDEO SYSTEM 0-360FT 2 REMOTE VIEW
2016194-003	KIT CAT5E VIDEO SYSTEM 0-360FT 3 REMOTE VIEW
2016194-004	KIT CAT5E VIDEO SYSTEM 0-360FT 4 REMOTE VIEW
2016195-001	KIT CAT5E VIDEO SYSTEM 360-800FT 1 REMOTE VIEW
2016195-002	KIT CAT5E VIDEO SYSTEM 360-800FT 2 REMOTE VIEW
2016195-003	KIT CAT5E VIDEO SYSTEM 360-800FT 3 REMOTE VIEW
2016195-004	KIT CAT5E VIDEO SYSTEM 360-800FT 4 REMOTE VIEW
2022038-001	PWR SPLY UPS 600VA 120 VOLTS
2022038-002	PWR SPLY UPS SMK 600VA 220 VOLTS
2022038-003	PWR SPLY UPS SMK 2000VA 120 VOLTS
2022144-002	USB Mouse Optical scroll lighted
2026420-001	CD OPR MNL CIC V5 MULTI (multilingual)
2026420-002	CD SVCE MNL CIC V5 ENG

Power cables

Item Number	Item Description
80274-006	CORD PWR 125V 6FT STR
401855-001	PWR SPLY CRD RA CONT Euro 10A 250V 2.5M
401855-002	PWR SPLY CRD RA British 10A 250V 2.5M
401855-003	PWR SPLY CRD RA Italian 10A 250V 2.5M
401855-004	PWR SPLY CRD RA Israeli 10A 250V 2.5M
401855-005	PWR SPLY CRD ST Harness 10A 125V 2M
401855-006	PWR SPLY CRD ST Harness 10A 250V 2M
401855-007	PWR SPLY CRD RA Swiss 10A 250V 2.5M
401855-008	PWR SPLY CRD RA Indian 10A 250V 2.5M
401855-009	PWR SPLY CRD RA Danish 10A 250V 2.5M
401855-010	PWR SPLY CRD RA Australian 10A 250V 2.5M
401855-018	PWR CRD ST CHINA RA PLUG 10A 250V 2.5M

Keyboard kits

Item Number	Item Description	Item Number	Item Description
2012217-021	KYBD KIT CIC USB ENG US	2012217-034	KYBD KIT CIC USB WIN95-SWED/FIN
2012217-022	KYBD KIT CIC USB WIN95-BELGIAN	2012217-030	KYBD KIT CIC USB WIN95-SWISS
2012217-023	KYBD KIT CIC USB WIN95-DANISH	2012217-031	KYBD KIT CIC USB WIN95-CZECH
2012217-024	KYBD KIT CIC USB WIN95-ENG EU	2012217-032	KYBD KIT CIC USB WIN95- DUTCH
2012217-025	KYBD KIT CIC USB WIN95-ENG UK	2012217-033	KYBD KIT CIC USB WIN95-RUSSIAN
2012217-026	KYBD KIT CIC USB WIN95-FRENCH	*	KYBD KIT CIC USB WIN95-SLOVENIA
2012217-027	KYBD KIT CIC USB WIN95-GERMAN	*	KYBD KIT CIC USB WIN95-CHINESE
2012217-035	KYBD KIT CIC USB WIN95-ITALIAN	*	KYBD KIT CIC USB WIN95-JAPANESE
2012217-028	KYBD KIT CIC USB WIN95-NORWEGIAN	*	KYBD KIT CIC USB WIN95-POLISH
2012217-036	KYBD KIT CIC USB WIN95-PORTUGUESE	*	KYBD KIT CIC USB WIN95-HUNGARIAN
2012217-029	KYBD KIT CIC USB WIN95-SPANISH		

*Contact GE for part number information

Disassembly guidelines

WARNING
REPAIR TO THE FRU LEVEL — Field repairs are recommended to the field replaceable unit (FRU) only. Attempting a field repair on a PCB or a factory sealed component or assembly could jeopardize the safe and effective operation of the device.

NOTE
GE recommends that you assemble the devices using the new fasteners (screws, washers, etc.) provided in the Field Replaceable Unit kit. Some fasteners, like the screws with a thread locking coating, are not intended to be re-used more than three times.

Required tools and equipment

- A standard set of hand tools is required for disassembly and assembly.
- The CIC Pro Clinical Information Center V5.0.x Software Reload Instructions is required for replacing the hard drive.

Before Disassembly

Before you disassemble any devices, always complete the following procedure:

1. Turn off the power to the CIC Pro center and unplug the power cord from the back of the processor box and from the electrical wall outlet.

WARNING
Pressing the power switch to the off position on the back panel does not turn off the device's AC power. To remove electrical power from the device, you must unplug the AC power cord from the electrical wall outlet or unplug the power cord connector from the unit.

The CIC Pro center remains energized for a period of time after shutdown. Wait 30 seconds before proceeding.

2. Turn off the power to all connected peripheral devices.
3. Label then disconnect all peripheral cables and telecommunication lines connected to the connectors or ports on back of the processor box.
4. Provide appropriate electrostatic discharge protection to prevent damaging the device. See "Electrostatic discharge (ESD) precautions" on page 8-13.

CAUTION
The CIC Pro center is extremely static sensitive and should be

handled as directed in "Electrostatic discharge (ESD) precautions" on page 8-13.

5. Be aware that the nonspecific disassembly instructions apply to all devices supported by this service manual. Disassembly for specific models of the device are identified when required.

During disassembly

During disassembly, note the positions of wires, cables, and different sized screws; marking them if necessary to ensure they are replaced correctly.

Electrostatic discharge (ESD) precautions

All external connector inputs and outputs of the device are protected from electrostatic discharge (ESD) damage. However, if the interior of the device needs to be accessed for any reason, internal components and assemblies are susceptible to ESD damage. This includes human hands, non-ESD protected work stations, and improperly grounded test equipment.

The following guidelines help make a service workstation more resistant to ESD damage:

- Discharge any static charge you may have built up before handling semiconductors or assemblies containing semiconductors. This can be done by touching any bare metal on the CIC Pro center chassis, the cable connector jacks or the ground post on the back of the unit. Do this frequently and repeatedly while working on the unit.
- Wear a grounded, antistatic wristband (3M part number 2046 or equivalent) or heel strap at all times while handling or repairing assemblies containing semiconductors.
- Use properly grounded soldering and test equipment.
- Use a static-free work surface (3M part number 8210 or equivalent) while handling or working on assemblies containing semiconductors.
- Keep the work surface free of nonconducting materials such as ordinary plastic assembly aids and foam packing.
- Do *not* remove semiconductors or assemblies containing semiconductors from antistatic containers (Velo-stat bags) until absolutely necessary.
- Make sure power to an assembly is turned off before removing or inserting a semiconductor.
- Do *not* slide semiconductors or electrical/electronic assemblies across any surface.
- Do *not* touch semiconductor leads unless absolutely necessary.
- Semiconductors and electrical/electronic assemblies should be stored only in antistatic bags or boxes.

These guidelines cannot guaranty a 100% static-free workstation, but greatly reduce the potential for failure of any electrical/electronic assemblies due to electrostatic discharge.

FRU components

WARNING
PERSONAL INJURY OR EQUIPMENT DAMAGE — *First* complete "Electrostatic discharge (ESD) precautions" on page 8-13 before performing any other procedure in this chapter. Failure to follow this instruction could result in serious injury or product/property damage.

This section describes the procedures required to replace the field replaceable units (FRU) of this device:

- "Replacing the fan fuses" on page 8-14
- "Removing or replacing the cover" on page 8-16
- "Replacing the CPU battery" on page 8-17
- "Replacing the hard drive" on page 8-18
- "Replacing the cooling fans" on page 8-21
- "Replacing the CPU board" on page 8-22
- "Replacing the power supply" on page 8-27
- "Replacing the internal speaker" on page 8-30

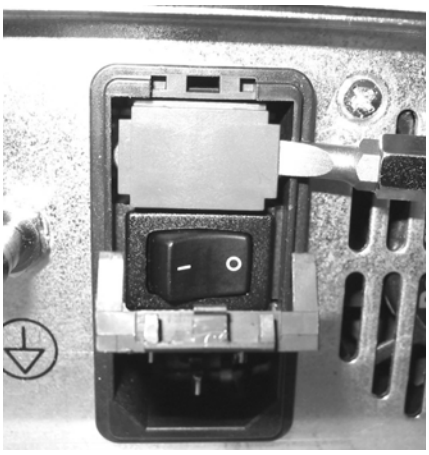
Replacing the fan fuses

Complete the following procedure to replace the fan fuses located in the back of the processor box:

1. Turn off the power to the CIC Pro center and unplug the power cord from the back of the processor box and from the electrical wall outlet.
2. Insert a flat-bladed screwdriver into the latch at the top of the fuse door and pry the door open.

047A

3. Insert a flat-bladed screwdriver under the lip in the fuse holder, pry the fuse holder loose and slide it out of the unit.

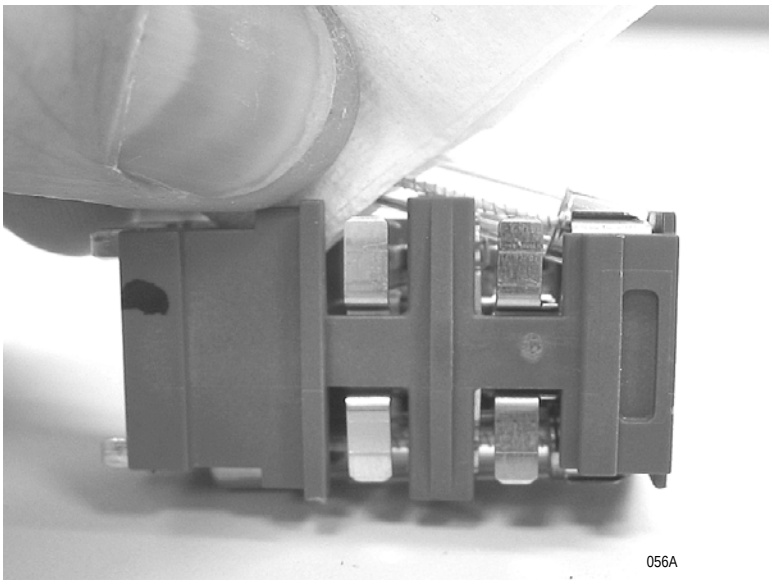


132A

4. Using gloves, a tissue, or a clean cloth between your fingers and the fuses, remove the fuses from the fuse holder.

NOTE

Do not touch fuses with your bare hands. Oils and acids on your skin can greatly diminish fuse life.



056A

5. Examine both fuses.
6. Replace any blown or damaged fuses.
7. Reassemble in reverse order.

Removing or replacing the cover

WARNING
SHOCK HAZARD — Perform the “Electrical safety tests” on page 9-7 whenever replacing the cover. Whenever the cover is removed, the possibility of disrupting internal components is present, which presents the risk of disruption of proper power or ground connections. Potential for electrical shock exists if the proper tests are not conducted after the cover is replaced.

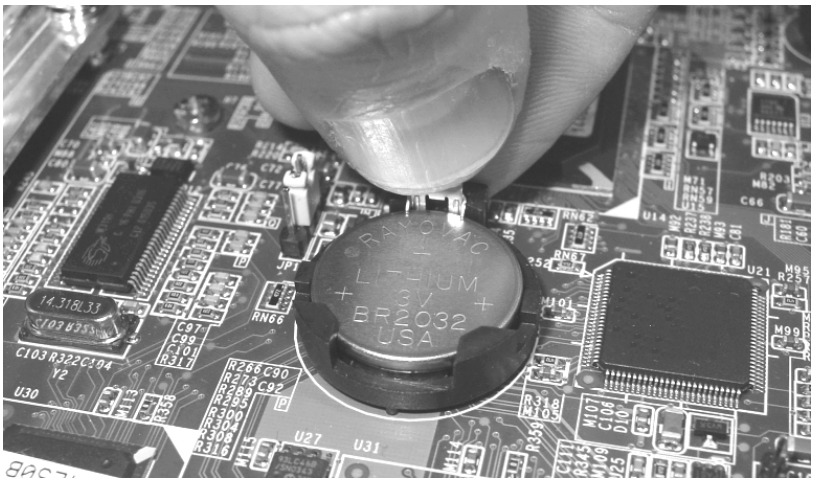
1. Complete “Electrostatic discharge (ESD) precautions” on page 8-13.
2. Use a phillips screwdriver to remove the eight screws (four screws on each side) securing the cover.

038A

3. Lift off the cover.
4. Replace the defective components.
5. Reassemble in reverse order.
6. Complete the “Electrical safety tests” on page 9-7.

Replacing the CPU battery

1. Complete the “Electrostatic discharge (ESD) precautions” on page 8-13.
2. Complete “Removing or replacing the cover” on page 8-16.
3. Push the battery latch away from the battery until the battery pops loose and remove the battery.



052A

4. Replace the battery.
5. Reassemble in reverse order.
6. Complete the “Electrical safety tests” on page 9-7.

Replacing the hard drive

NOTE

After replacing the hard drive, you will need to reload and configure a ghosted image of the CIC Pro center software application. See the CIC Pro Clinical Information Center Software Reload Instructions for details.

1. If possible, complete "Backup or restore the CIC Pro center configuration" on page 7-13 before continuing with this procedure.
2. Complete "Electrostatic discharge (ESD) precautions" on page 8-13.
3. Complete "Removing or replacing the cover" on page 8-16.
4. Disconnect the hard drive ribbon cable from the hard drive.

045A

5. Use a phillips screwdriver to completely loosen the three screws securing the hard drive bracket to the chassis.

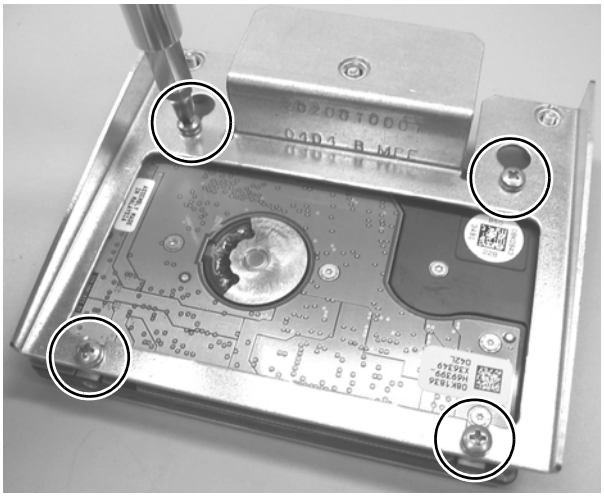
032A

6. Remove the hard drive and bracket.

7. Use a phillips screwdriver to loosen the four screws securing the hard drive to the bracket.

NOTE

Do *not* remove the screws. It is necessary only to loosen the screws enough to allow the hard drive to slip out of the bracket.



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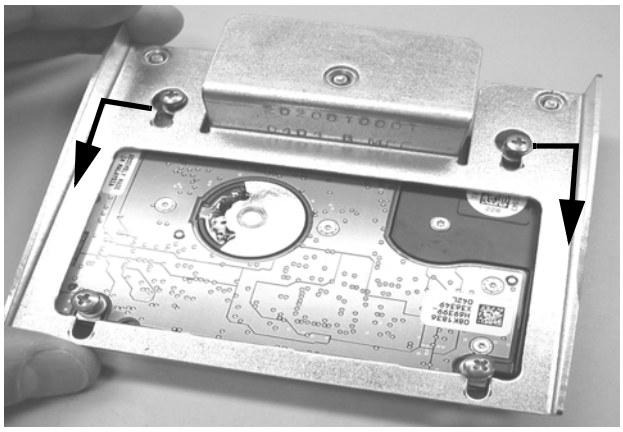
8. Slide the hard drive until the screws clear the holes in the bracket and remove the hard drive. For reassembly, note the position of any washers on the screws.



053A

9. Replace the hard drive and reassemble in reverse order.
10. Complete the “Electrical safety tests” on page 9-7.
11. Complete the CIC Pro Clinical Information Center Software Reload Instructions.

CAUTION

EQUPMENT MALFUNCTION/DATA LOSS — Always perform both the compact flash and hard drive ghost procedures. Never perform one without the other. Equipment malfunction and/or data loss can occur if this instruction is not followed.

12. Complete the procedures in Chapter 5, “Configuration” to configure the CIC Pro center for use.

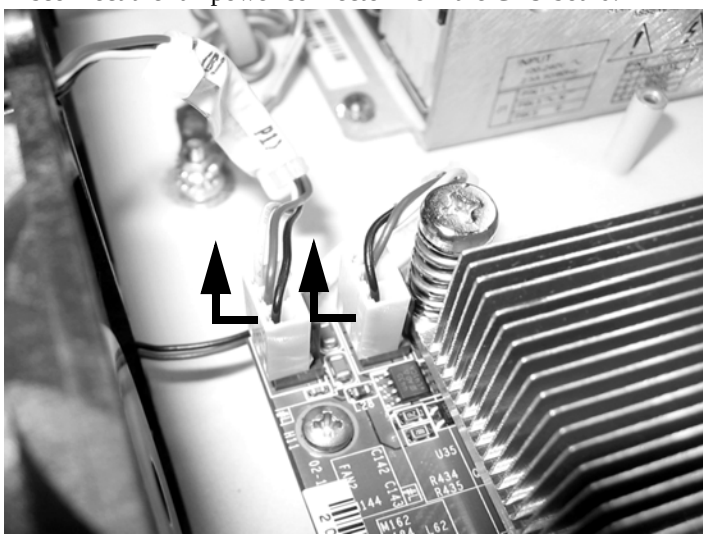
Replacing the cooling fans

NOTE

The CIC has two cooling fans. Determine whether you need to replace one or both cooling fans.

Complete the following steps for the fan(s) you are replacing:

1. Complete "Electrostatic discharge (ESD) precautions" on page 8-13.
2. Complete "Removing or replacing the cover" on page 8-16.
3. Disconnect the fan power connector from the CPU board.



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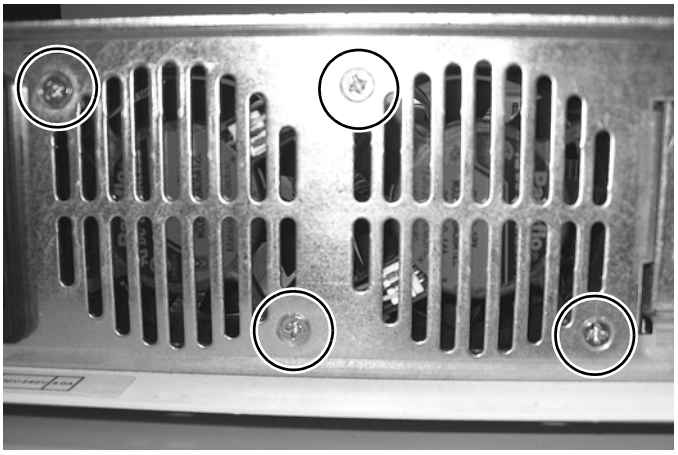
4. Use a phillips screwdriver and an adjustable wrench to remove the two screws securing the fan to the back of the chassis and remove the fan.



044A

5. Replace the fan and reassemble in reverse order.
6. Complete the "Electrical safety tests" on page 9-7.

Replacing the CPU board

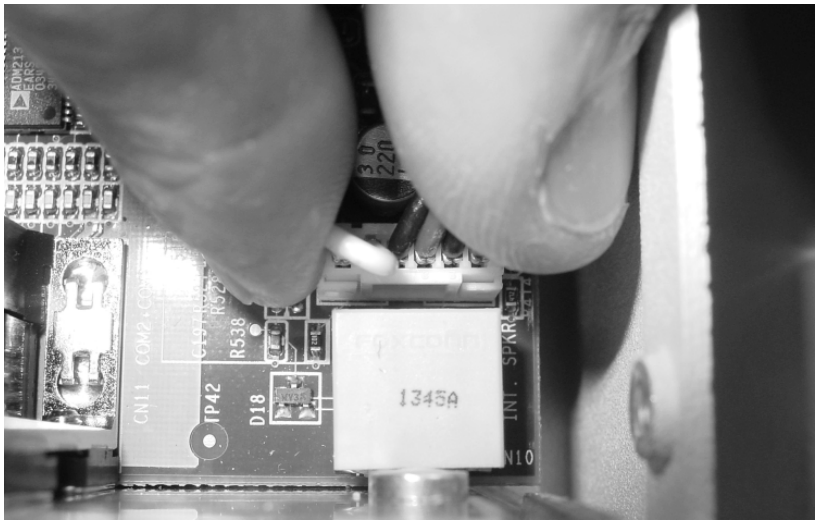
This section describes all of the procedures you must complete when replacing the CPU board:

- “Remove and replace CPU board” on page 8-22.
- “Reload the CIC Pro center application software” on page 8-25.
- “Enter the replacement CPU board serial number” on page 8-25.

Remove and replace CPU board

Complete the following steps to remove and replace the CPU board:

1. Complete “Electrostatic discharge (ESD) precautions” on page 8-13.
2. Disconnect all peripheral cables and telecommunication lines connected to the connectors or ports on back of the processor box.
3. Complete “Removing or replacing the cover” on page 8-16
4. Disconnect the speaker connector from the back left corner of the CPU board.



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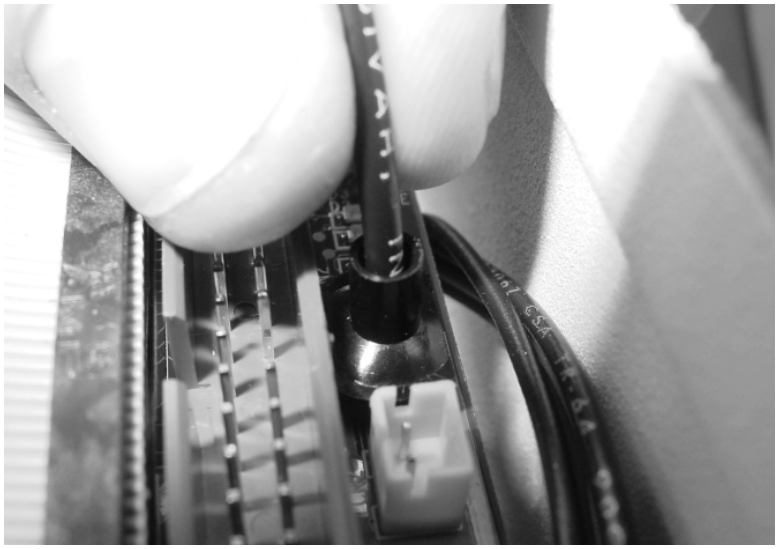
5. Disconnect the light pipe from the front left corner of the CPU board.



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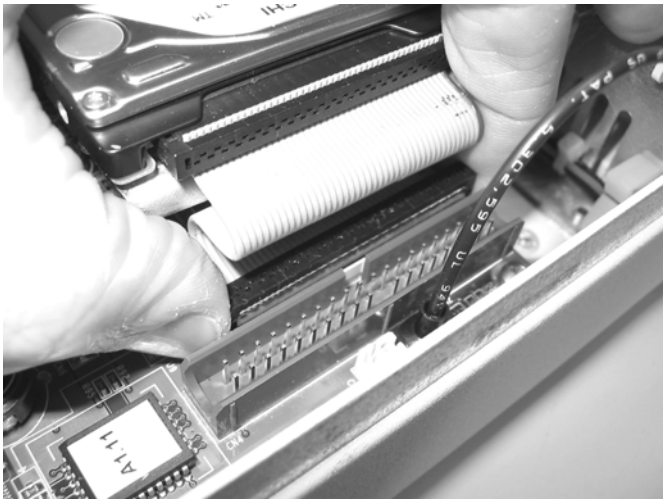
6. Disconnect the hard drive ribbon cable from the connector at the front left corner of the CPU board.



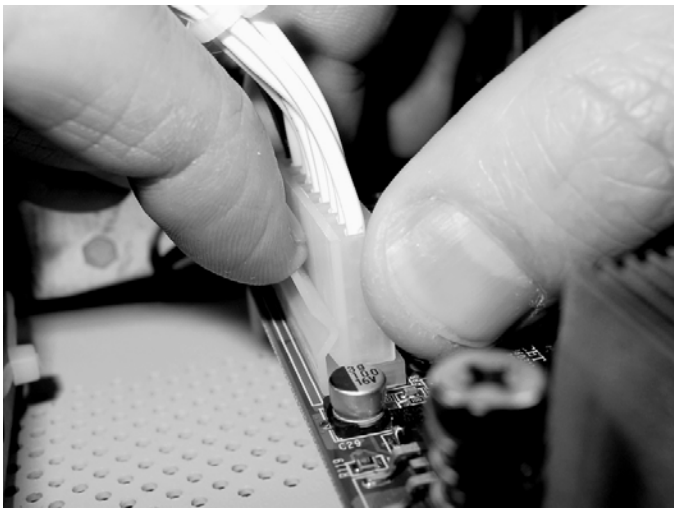
054A

7. Disconnect the power supply cable from the connector at the front right corner of the CPU board.

NOTE

Pry back the retaining tab to free the connector. It may be necessary to use

a flat-bladed screwdriver to pry back the tab.



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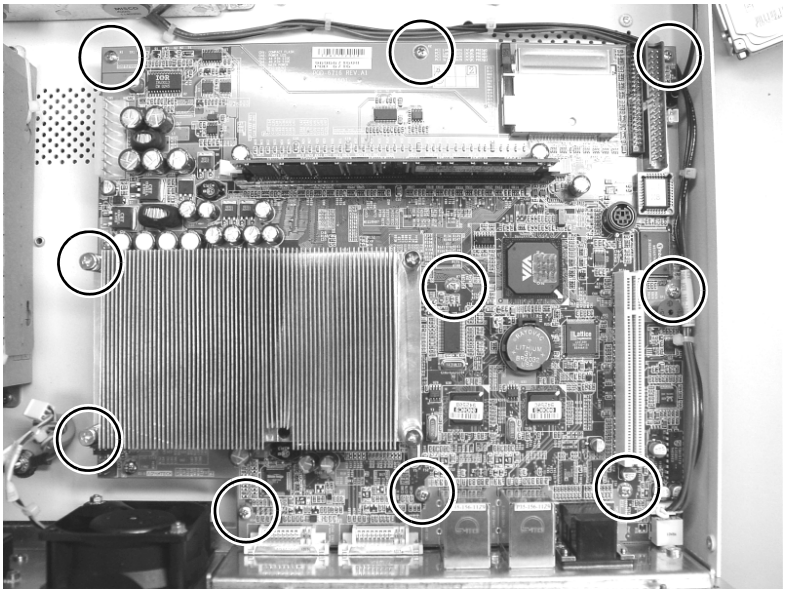
8. Complete “Replacing the hard drive” on page 8-18.
9. Use a phillips screwdriver to remove the 10 screws securing the CPU board to the bottom of the chassis.



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10. Use a phillips screwdriver to remove the two screws securing the CPU board to the back of the chassis.

031A

11. Replace the CPU board and reassemble in reverse order.

Reload the CIC Pro center application software

1. Reload the CIC Pro center application software onto the replacement CPU board. See the "CIC Pro Clinical Information Center Software Reload Instructions."
2. Complete the "Configuration checkout procedures" on page 9-12

CAUTION
EQUPMENT MALFUNCTION/DATA LOSS — Always perform both the compact flash and hard drive ghost procedures. Never perform one without the other. Equipment malfunction and/or data loss can occur if this instruction is not followed.

Enter the replacement CPU board serial number

After loading the CIC Pro center software application onto the CPU board and completing the checkout procedures, you must enter the CPU board serial number into the ***User Asset Management*** tool:

1. "Log on to the Administrator mode" on page 4-4.
2. From the desktop, double-click the

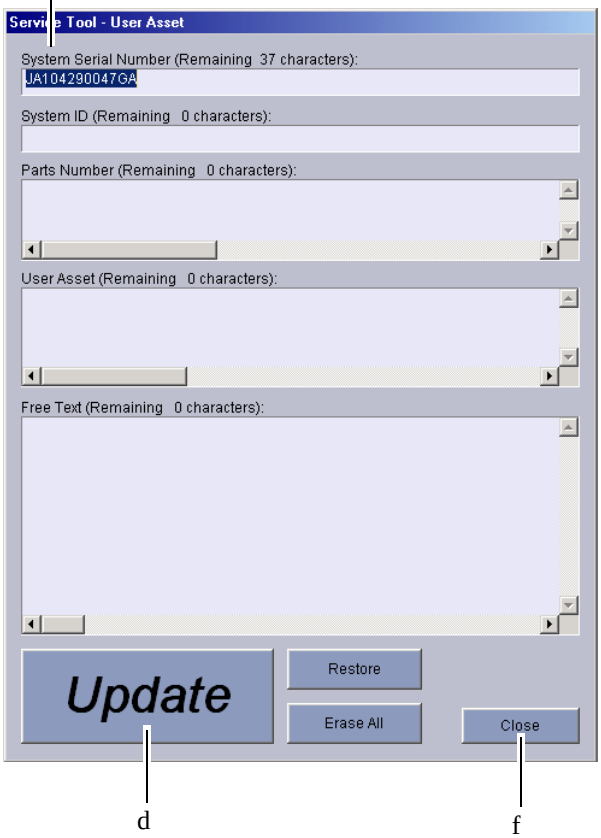
(***SVOffline.exe*** icon) to launch this application. The ***Service Tool - Login*** window displays.
3. "Log on to Service Tools" on page 4-12.
4. Enter the CPU board serial number:
   a. If not already displayed, click ***Service Tools*** to display the service tool

options.

617A

b. Double-click

(User Asset Management icon) to launch this application. The ***Service Tool - User Asset*** window displays.



619A

c. Under ***System Serial Number***, type the serial number of the CPU board.

d. Click ***Update*** and click ***Yes*** when the ***Are you sure you want to UPDATE?*** message displays.

e. (optional) To restore the previous serial number, click ***Restore*** and click ***Yes*** when the ***Are you sure you want to RESTORE?*** message displays.

f. When you are finished, click ***Close*** to close the ***User Asset*** window.

g. Click ***Close*** to close the ***CIC - Service Tool*** window.

5. Log off as Administrator

a. From the Windows taskbar, click ***Start*** > ***Shut Down*** > ***Log off Administrator*** > ***OK***. The CIC Pro center restarts and in approximately 30 seconds, displays the multi-patient viewer.

b. Verify the replacement CPU board serial number is displayed in the upper right-hand corner of the multi-patient viewer.

Replacing the power supply

WARNING
SHOCK HAZARD — Never touch components inside the power supply. There are no field serviceable components inside. Capacitors in the power supply present a shock hazard even with the power switched off.

1. Complete “Electrostatic discharge (ESD) precautions” on page 8-13.
2. Complete “Removing or replacing the cover” on page 8-16.

CAUTION
During CIC Pro center operation, the power supply gets hot enough to cause severe burns. Allow the power supply and insulation shield to thoroughly cool after shutting down the CIC Pro center, before touching the power supply.

3. Disconnect the connector at the front of the power supply at the right front of the chassis.

NOTE
Pry back the retaining tab on the back of the socket to free the connector. It

may be necessary to use a flat-bladed screwdriver to pry back the tab.

051A

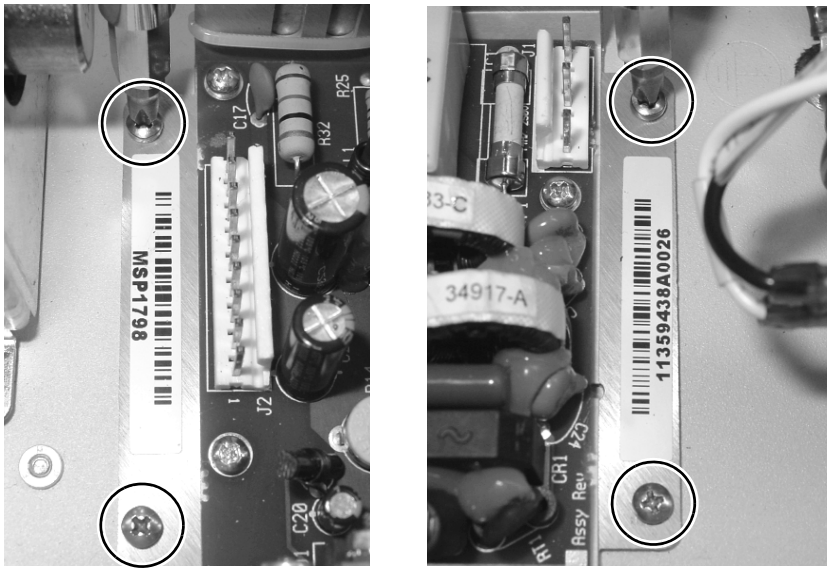
4. Disconnect the connector at the back of the power supply at the right back of the chassis.

NOTE

Pry back the retaining tab on the back of the socket to free the connector. It may be necessary to use a flat-bladed screwdriver to pry back the tab.

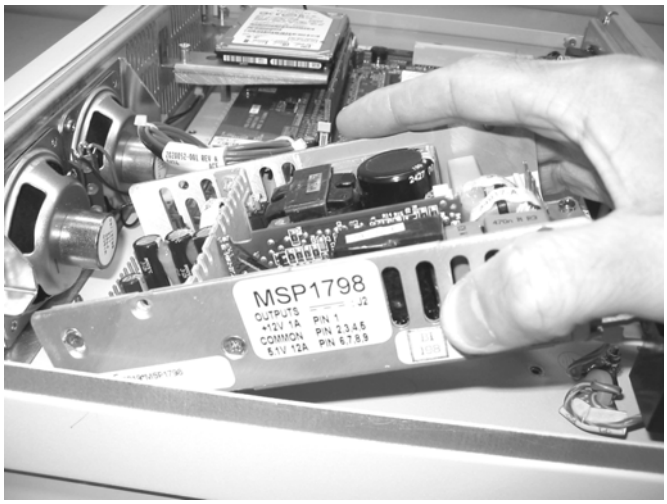
048A

5. Use a phillips screwdriver to remove the four screws (two in back and two in front) securing the power supply to the chassis.



057A, 058A

6. Replace the power supply and reassemble in reverse order.

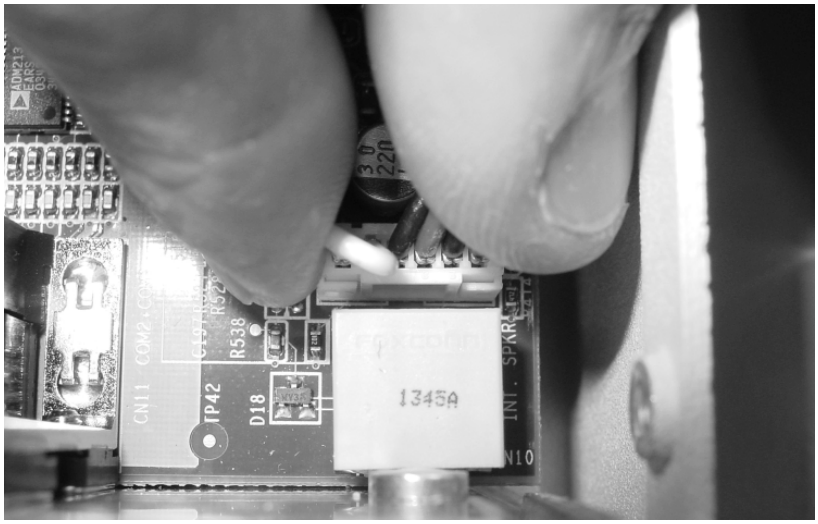


055A

7. Complete the “Electrical safety tests” on page 9-7.

Replacing the internal speaker

1. Complete the “Electrostatic discharge (ESD) precautions” on page 8-13.
2. Complete “Removing or replacing the cover” on page 8-16.
3. Disconnect the speaker connector from the socket at the back left corner of the CPU board.



035A

4. Use a phillips screwdriver to completely loosen the two screws securing the speakers to the chassis.

040A

5. Replace the two speakers and reassemble in reverse order.
6. Complete the “Electrical safety tests” on page 9-7.

Recommended checkout procedures

After reassembling the CIC Pro center, always complete the electrical safety tests, checkout procedures, calibration tests, and regular maintenance procedures identified and described in the “Preventive maintenance and checkout checklist” on page 9-4.

9 Checkout

Overview

Manufacturer Recommendations

These safety tests and checkout procedures provide service personnel with a method to verify operational and functional performance of the equipment. Failure to attain the prescribed results indicates a need for calibration, configuration, or repair of the equipment.

The safety tests and checkout procedures are based on the assumption that the tested monitor has known good cables and test equipment. It also requires that the user be familiar with the operation of all test equipment required for the procedures. For more information concerning the operation of these components, refer to the respective operator manual(s).

Frequency

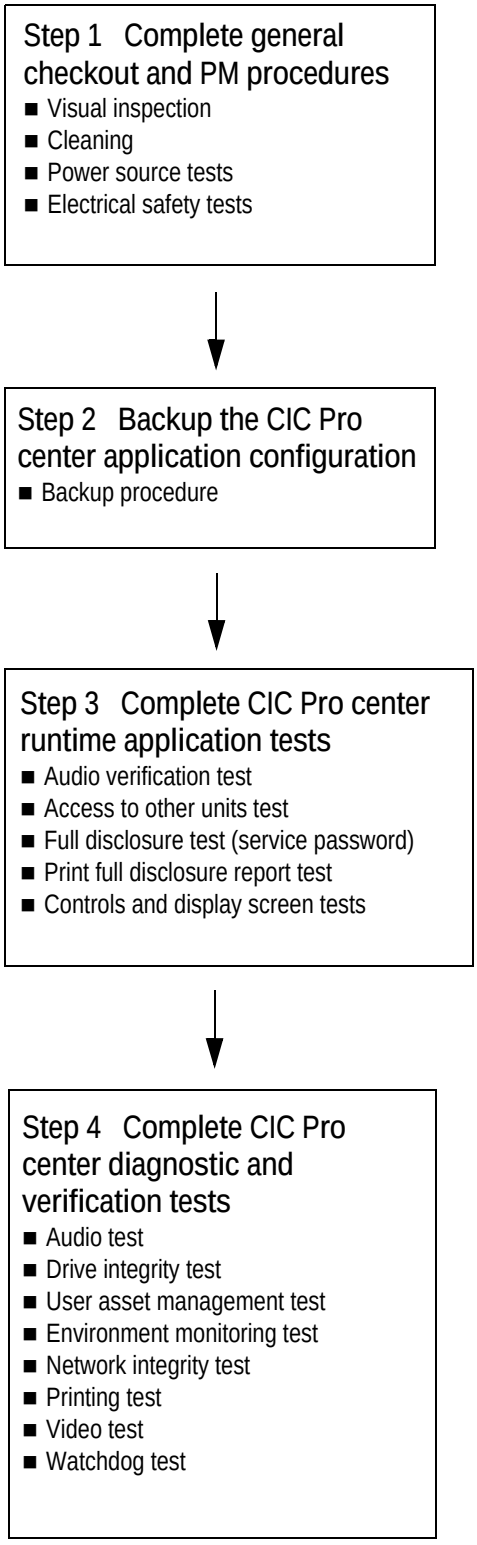
GE recommends that you perform the checkout procedures:

- Upon receipt of the device.
- Every 12 months thereafter.
- Each time the main enclosure is disassembled or a circuit board is removed, tested, or replaced.

Test Equipment

The safety tests and checkout procedures are written for the GE recommended test equipment listed for each test. If you use test equipment other than those GE recommends, you may need to slightly modify some test steps.

Checkout process flow


Step 1 Complete general checkout and PM procedures
■ Visual inspection
■ Cleaning
■ Power source tests
■ Electrical safety tests
Step 2 Backup the CIC Pro center application configuration
■ Backup procedure
Step 3 Complete CIC Pro center runtime application tests
■ Audio verification test
■ Access to other units test
■ Full disclosure test (service password)
■ Print full disclosure report test
■ Controls and display screen tests
Step 4 Complete CIC Pro center diagnostic and verification tests
■ Audio test
■ Drive integrity test
■ User asset management test
■ Environment monitoring test
■ Network integrity test
■ Printing test
■ Video test
■ Watchdog test

Preventive maintenance and checkout checklist

Use the following checklist to ensure completion of all preventive maintenance and checkout procedures.

❑ "System Resource Management" on page 6-3

❑ "Visual inspection" on page 6-5

1. ___ General condition
2. ___ Connectors
3. ___ Cable insulation
4. ___ Display
5. ___ Fans
6. ___ Safety labels and inscriptions
7. ___ Mounting hardware

❑ "Cleaning" on page 6-6

1. ___ External surfaces
2. ___ Display screen and touchscreen
3. ___ Keyboard
4. ___ Optical mouse
5. ___ Internal components
6. ___ Fans
7. ___ Mechanical mouse

❑ "Electrical safety tests" on page 9-7

1. ___ Power outlet test
2. ___ Ground continuity test
3. ___ Ground (earth) wire leakage current tests
4. ___ Enclosure (chassis) leakage current tests

❑ “Backup or restore the CIC Pro center configuration” on page 7-13

1. ___ Backup

❑ “Configuration checkout procedures” on page 9-12

1. ___ Controls and display screen
2. ___ Disk check
3. ___ Audio verification test (runtime)
4. ___ Verify access to all other care units
5. ___ Verify current system settings
6. ___ Verify full disclosure
7. ___ Verify each CIC Pro center can print a full disclosure report
8. ___ Audio test
9. ___ Drive integrity test
10. ___ User asset management (what are you checking out here?)
11. ___ Environment monitoring
12. ___ Network integrity test
13. ___ Printing test
14. ___ Video test
15. ___ Watchdog test

Power source tests

Power outlet test

Verify the power outlet is wired correctly per the country's electrical code standard before starting the following electrical safety tests. The results of the safety tests will be inaccurate unless a properly wired power outlet is used.

Power cord and plug test

Verify the power cord being used with the monitor is good. The following are a couple of things to check for in this regard:

- Failure of the power cord strain relief is very common. Often times users of the equipment pull on the power cord itself, rather than the power cord plug, to unplug the monitor from a power outlet. If in doubt, test for continuity through each conductor of the power cord connector and plug.
- Verify line, neutral, and ground conductors are properly connected to the power cord plug and are not short-circuited. Rewire and tighten these, or replace the power cord, as necessary.

Electrical safety tests

General

Electrical safety tests provide a method of determining if potential electrical health hazards to the patient or operator of the device exist.

Recommendations

GE recommends that you perform all safety tests presented in this chapter.

- upon receipt of the device (monitor and its associated equipment),
- every twelve months thereafter,
- each time the main enclosure is disassembled or a circuit board is removed, tested, repaired, or replaced, and
- record the date and results on the “Maintenance/Repair Log” included at the end of this chapter.

WARNING
Failure to implement a satisfactory maintenance schedule may cause undue equipment failure and possible health hazards. Unless you have an Equipment Maintenance Contract, GE does not in any manner assume the responsibility for performing the recommended maintenance procedures. The sole responsibility rests with the individual or institution using the equipment. GE service personnel may, at their discretion, follow the procedures provided in this manual as a guide during visits to the equipment site.

Test Conditions

Electrical safety tests may be performed under normal ambient conditions of temperature, humidity, and pressure.

Test Equipment

The recommended test equipment required to perform electrical safety tests is listed below.

Item	Specification
Leakage Current Tester	Equivalent to the circuits shown
Digital Multimeter (DMM)	AC volts, ohms
Ground Bond Tester	0 – 1 ohm

Ground (Earth) Integrity

Listed below are two methods for checking the ground (earth) integrity, “Ground Continuity Test” and “Impedance of Protective Earth Connection.” These tests determine whether the device's exposed metal and power inlet's earth (ground) connection has a power ground fault condition.

Perform the test method below that is required by your Country/Local governing safety organization.

Ground Continuity Test

Completion of this test is checked by the following steps:

1. Disconnect the device under test from the power outlet.
2. Connect the negative (-) lead of the DMM to the protective earth terminal (ground pin in power inlet connector) or the protective earth pin in the Mains plug (ground pin in power cord).
3. Set the DMM to the milliohm (mΩ) range.
4. Connect the positive (+) lead of the DMM to all exposed metal surfaces on the device under test. If the metal surfaces are anodized or painted, scrape off a small area in a inconspicuous place for the probe to make contact with the metal.
5. Resistance must read:
   - 0.1 ohm or less without power cord
   - 0.2 ohms or less with power cord

Impedance of Protective Earth Connection

This test, unlike a ground continuity test, will also stress the ground system by using special ground bond testers.

This test normally is only required as a manufacturing production test to receive safety agency compliance.

Some country agencies do require this test after field equipment repairs (i.e. Germany's DIN VDE 0751 standards).

Consult your country/local safety agency if in question.

Compliance is checked by the following steps:

1. A current of 25A from a current source with a frequency of 50 or 60 Hz with a no-load voltage not exceeding 6 V is passed for at least 5 s through the protective earth terminal or the protective earth pin in the mains plug and each accessible metal part which could become live in case of failure in basic insulation.
2. The voltage drop between the parts described is measured and the impedance determined from the current and voltage drop. It shall not exceed the values indicated.

For equipment without a power supply cord the impedance between the protective earth terminal and any accessible metal part which is protectively earthed shall not exceed 0.1 ohms

For equipment with a power supply cord the impedance between the protective earth pin in the mains plug and any accessible metal part which is protectively earthed shall not exceed 0.2 ohms.

When taking this measurement, move the unit's power cord around. There should be no fluctuations in resistance.

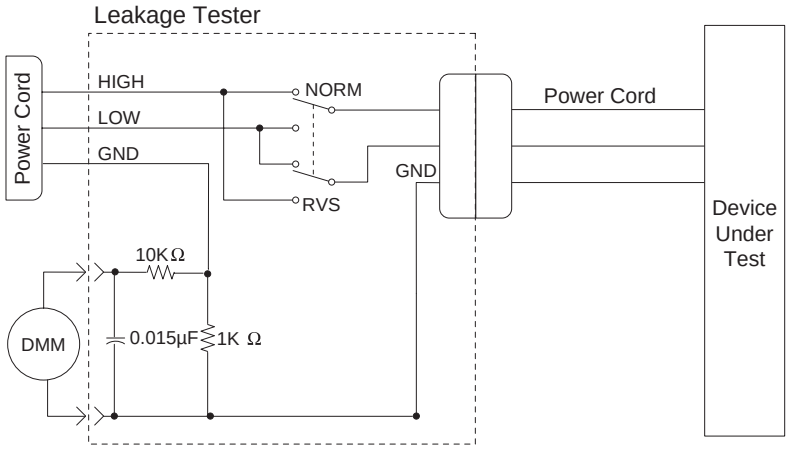
Ground (Earth) Wire Leakage Current Tests

Perform this test to measure current leakage through the ground (earth) wire of the equipment during normal operation.

NOTE

The DMM plus leakage tester network shown is the circuitry defined by the IEC/EN/UL 60601-1 standard for measuring leakage current.

1. Configure the leakage tester like the circuit shown below.



DMM set to measure AC voltage

2. Connect the power cord of the device under test to the power receptacle on the leakage tester.
3. The device under test is to be tested at its normal operating voltage.
4. Set the power switch of the device under test to ON.
5. Read the current leakage indicated on DMM.
6. Set the polarity switch on the leakage tester to RVS (reverse).
7. Read the current leakage indicated on DMM.

NOTE

If either reading is greater than the appropriate specification below, the device under test fails. Contact GE Technical Support.

- 300 µA (0.3 volts on the DMM), and the device under test is powered from 100-120 V/50-60 Hz
- 300 µA (0.3 volts on the DMM), and the device under test is powered from a centered-tapped 200-240 V/50-60 Hz, single phase circuit

- 500 µA (0.5 volts on the DMM), and the device under test is powered from a non-center-tapped, 200-240 V/50-60 Hz, single-phase circuit

NOTE

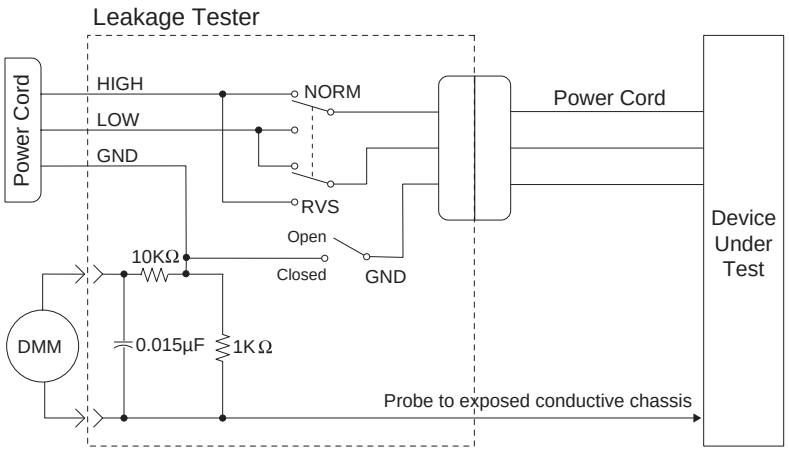
Center-tapped and non-center-tapped supply circuits produce different leakage currents and the UL and IEC limits are different.

8. Set the power switch of the device under test to OFF.

Enclosure Leakage Current Test

Perform this test to measure current leakage through exposed conductive surfaces on the device under test during normal operation.

1. Configure the leakage tester like the circuit shown below with GND switch OPEN and polarity switch NORM.



DMM set to measure AC voltage

2. Connect probe to an unpainted, non-anodized chassis ground on the unit under test.
3. Set the power switch of the device to ON.
4. Read the current leakage indicated on DMM.

NOTE

Center-tapped and non-center-tapped supply circuits produce different leakage currents and the UL and IEC limits are different.

5. Set the polarity switch to RVS.
6. Read the current leakage indicated on DMM.

NOTE

If either reading is greater than the appropriate specification below, the device under test fails. Contact GE Technical Support.

- 300 µA (0.3 volts on the DMM), and the device under test is powered from 100-120 V/50-60 Hz
- 300 µA (0.3 volts on the DMM), and the device under test is powered from a centered-tapped 200-240 V/50-60 Hz, single phase circuit
- 500 µA (0.5 volts on the DMM), and the device under test is powered from a non-center-tapped, 200-240 V/50-60 Hz, single-phase circuit

7. Set the GND switch on the leakage tester to CLOSED.
8. Read the current leakage indicated on DMM.
9. Set the polarity switch to RVS.
10. Read the current leakage indicated on DMM.

    NOTE

    If the reading is greater than the specification below, and the device under test is powered from 100-240 V/50-60 Hz, the device under test fails. Contact GE Technical Support.

    - 100 µA (0.1 volts on the DMM), and the device under test is powered from 100-240 V/50-60 Hz

11. Set the power switch of the device under test to OFF.

Test Completion

1. Disconnect the leakage tester from the power outlet.
2. Disconnect all test equipment from the device.
3. Disconnect the device power cord from the leakage tester.

Configuration checkout procedures

Complete all of the checkout procedures included in this section to thoroughly test the system for proper function and operation.

NOTE

Close all files before starting the checkout procedures.

Check the operation of the input devices and display screens

Complete the following procedure to check the proper operation of the keyboard, mouse, and display monitors:

1. Check the keyboard to make sure all of the keys work properly and do not stick when pressed. If any keys stick, or are otherwise non-functional, replace the keyboard.
2. Check the mouse to make sure the cursor follows mouse movements smoothly and the mouse buttons function properly. See “Cleaning” on page 6-6.
3. Check the display monitor to make sure it is meeting proper operation requirements. See the operating instructions packaged with each display monitor to check for (and adjust if necessary) the following operational requirements:
   - Proper contrast and color (adjust for best viewing in the environment where the monitor is used).
   - Proper screen focus.
   - Correct horizontal and vertical linearity.
   - Correct horizontal and vertical position.

Check for hard disk and compact disk errors (disk check)

Refer to "Check the read and write integrity of the hard and compact flash disk drives" on page 9-18.

Runtime application tests

Check the operation of the audible alarm tones

WARNING
The CIC Pro center audible alarms will not sound for patients with bedside monitoring devices configured to the "Operating Room" mode.

NOTE
Active alarms override this test.

Complete the following procedure to verify the audible alarms tones sound at the CIC Pro center:

1. Display a single patient viewer.
2. From the single patient viewer menu, click ***Monitor Setup*** > ***Alarm Control***.
3. Click the ***Alarm Help*** button.
4. Click the ***Advisory Alarm*** button.
5. Verify the audio tone plays through both speakers.
6. Click the ***X*** button to close the single patient viewer.

Check access to all other care units

Complete the following procedure to verify you can view patients from other care units on the Unity Network.

1. Display the multi-patient viewer.
2. From the multi-patient viewer menu, click ***View Other***.
3. Check that the list of networked care units, floors, or other hospitals is complete.

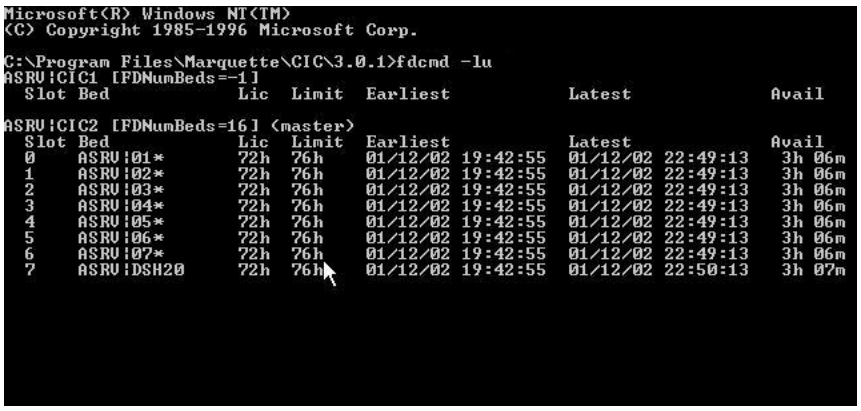
Check current system settings

Complete the check current system settings controlled by the setflags command. For more information, refer to "List current system settings" on page 7-10.

Check the Full Disclosure License Type used for all admitted in-unit beds

Complete the following procedure to verify that all admitted beds in the care unit are full disclosed with the correct license type:

1. "Log on to the command-line utility" on page 4-17.
2. At the ***c:*** command-line utility prompt, type **fdcmd -list** and then press **Enter**. The utility may take several seconds to execute (allow up to two minutes after boot up or after changing the ***Full Disclosure License Type***). Text similar to the following displays:



fdcmd -lu command results	
Option	Function
Slot	Display up to 16 full disclosure slots per CIC Pro center.
Bed	Display the unit or bed names where full disclosure data is acquired.
Lic	List the licenses that match the *Full Disclosure License Type*. 1hr is displayed if no licenses are present and the *Full Disclosure License Type* is set to *NONE*.
Master	Identify the *FD Master* within the care unit.
Limit	Identify the maximum amount of time the full disclosure data is available in the full disclosure database.
Earliest *Latest*	Display the earliest and latest time of data collection. If the date is shown as *01/01/70*, then data is not being collected. You need to run the ***fdcmd –lu*** command again to view changes.
Avail	Display the amount of data collected thus far. In this example, only three hours out of the 76 possible hours of data is collected.

Check the printing of full disclosure reports

Complete the following procedure to verify full disclosure reports can be printed:

1. Display a single patient viewer.
2. From the single patient viewer menu, click ***Patient Data...***> ***FD Page***. The ***FD Page*** window displays.
3. Verify waveforms appear.

NOTE

Full disclosure data will not appear for approximately 2-minutes for newly

admitted patients.

4. From the ***FD Page*** window, click (print button) located in the top right corner of the ***FD Page*** window. The ***Full Disclosure Report*** window displays.
5. Adjust the control settings to print a one hour full disclosure report:
   a. Set the start time of the report by using the scroll bar or double arrows located above ***Start***.
   b. Set the end time of the report by using the scroll bar or double arrows located above ***End***.
   c. Set the amount of data to be printed in each line of the report:

      -Next to ***Time Per Line***, click the down arrow to display the list of time durations.

      -Choose a time duration from the displayed list.
   d. Click ***Print*** to print the report.
6. Verify the full disclosure report printed out at the printer
7. Repeat this procedure for every CIC Pro center in the care unit.

Diagnostic and verification tests

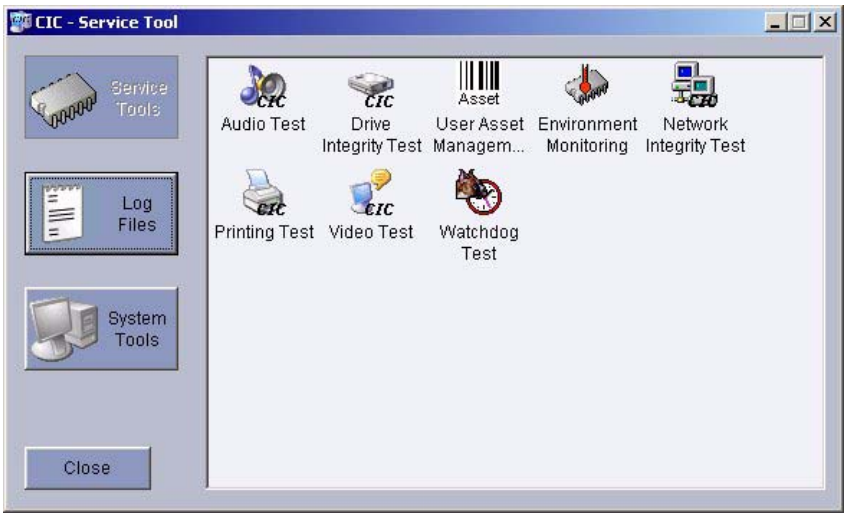
Using the ***Service Tools*** utility, you can view device or system information, verify proper operation, and troubleshoot specific functions of the CIC Pro center.

This section describes the tests and data assessment required to complete some of the checkout procedures using the ***Service Tool*** utility:

- "Check the operation of the audio components" on page 9-16.
- "Check the read and write integrity of the hard and compact flash disk drives" on page 9-18.
- "User Asset Management" on page 9-21.
- "Update the fields as needed and click Update." on page 9-21.
- "Check the network communication and the status of other networked devices" on page 9-24.
- "Check the printing of a test page and the status of installed printers" on page 9-25.
- "Check the video function and review the status of the video card and drivers" on page 9-28.
- "Check the operation of the Watchdog countdown function" on page 9-30.

Display the Service Tools utility window

1. “Log on to Service Tools” on page 4-12.
2. Click the ***Service Tools*** button. The ***CIC Service Tool*** window displays.



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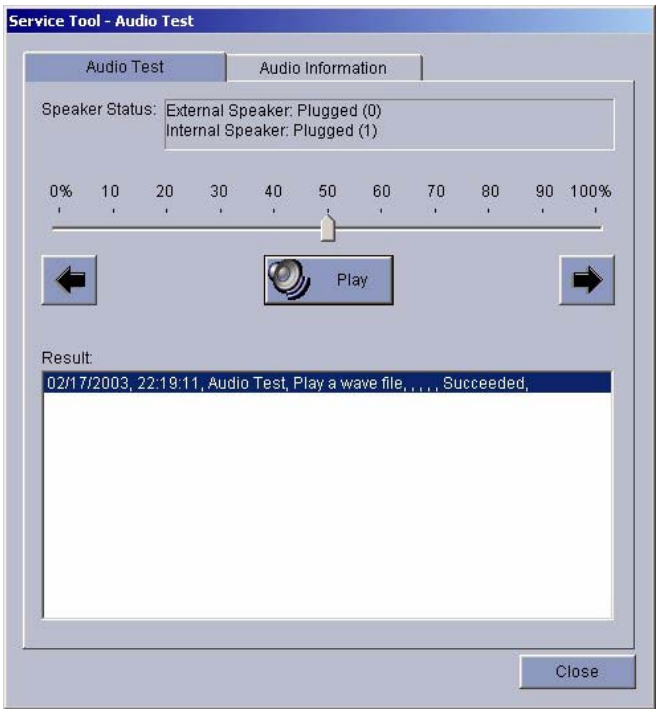
Check the operation of the audio components

Complete the following procedure to verify the audio components are functioning:

1. From the ***CIC Service Tool*** window, double-click the ***Audio Test*** icon. The ***Service Tool - Audio Test*** window displays.
2. Click the ***Audio Test*** tab.


Service Tool - Audio Test
Audio Test
Audio Information
Speaker Status:
External Speaker: Plugged (0)
Internal Speaker: Plugged (1)
0% 10 20 30 40 50 60 70 80 90 100%
Play
Result:
02/17/2003, 22:19:11, Audio Test, Play a wave file, , , , , Succeeded,
Close

105A

3. Click the ***Play*** button. You should hear a beeping tone emitted from the CIC Pro center speakers. The ***Audio Test*** window displays:

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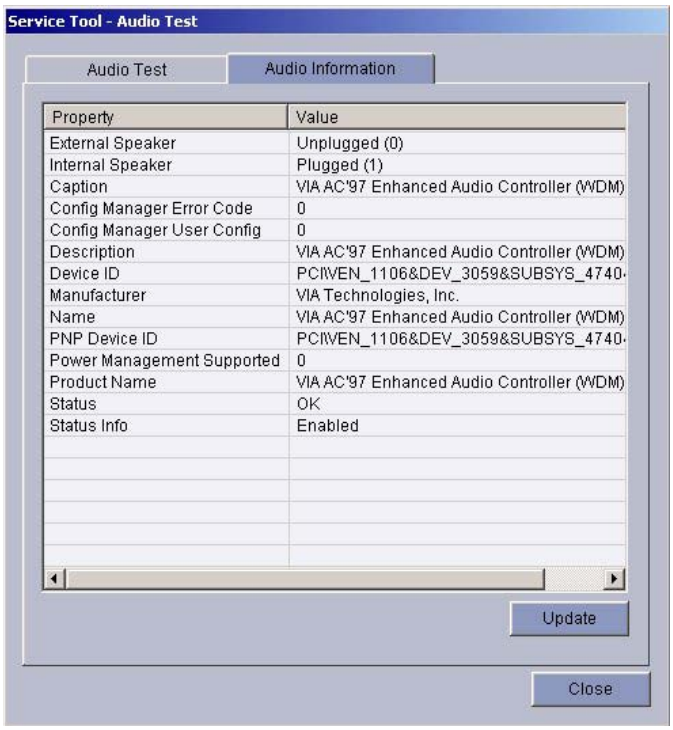
   a. If you heard a sound emitted from the speakers, click ***Yes***. The CIC Pro center passed this test.

   b. If you did not hear a sound emitted from the speakers, click to increase the volume, or click and drag the sound percentage slider to a higher percent value.

   c. If you still do not hear a sound emitted from the speakers, the CIC Pro center failed this test. Troubleshooting of the sound card and other troubleshooting may be required.

4. Click the ***Audio Information*** tab. Information about the CIC Pro audio system displays. Information on this tab is used for audio troubleshooting.

5. Click ***Update*** to refresh the displayed values.



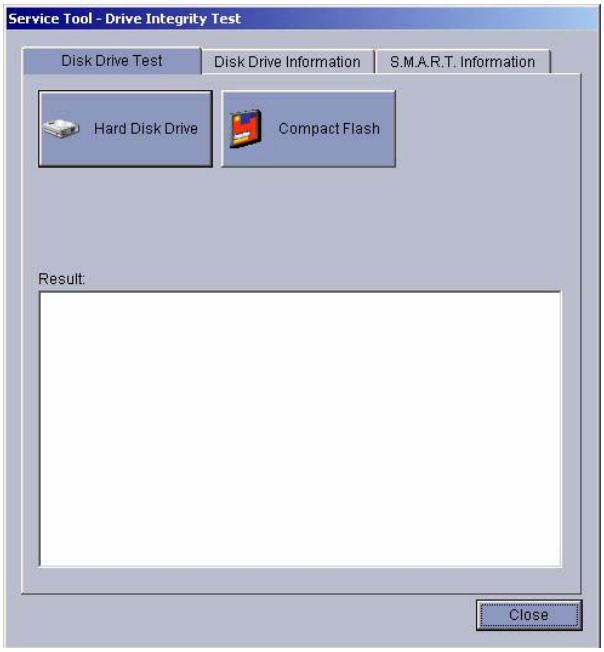
107A

6. Click ***Close*** to close the ***Service Tool - Audio Test*** window.

Check the read and write integrity of the hard and compact flash disk drives

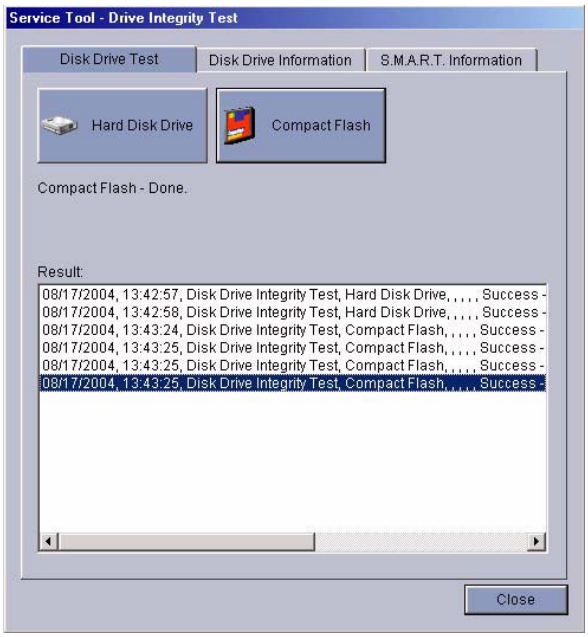
Complete the following procedure to test the read and write integrity of the hard disk and compact flash disk drives:

1. From the ***CIC Service Tool*** window, double-click the ***Drive Integrity Test*** icon. The ***Service Tool - Drive Integrity Test*** window displays.
2. Click the ***Disk Drive Test*** tab.



108A

3. Click the ***Hard Disk Drive*** button. The integrity of the hard drive is checked, and the results are displayed in the ***Result*** field.
4. Click the ***Compact Flash*** button. The integrity of the compact flash storage card is checked, and the results are displayed in the ***Result*** field.


Service Tool - Drive Integrity Test
Disk Drive Test
Disk Drive Information
S.M.A.R.T. Information
Hard Disk Drive
Compact Flash
Compact Flash - Done.
Result:
08/17/2004, 13:42:57, Disk Drive Integrity Test, Hard Disk Drive, , , , , Success -
08/17/2004, 13:42:58, Disk Drive Integrity Test, Hard Disk Drive, , , , , Success -
08/17/2004, 13:43:24, Disk Drive Integrity Test, Compact Flash, , , , , Success -
08/17/2004, 13:43:25, Disk Drive Integrity Test, Compact Flash, , , , , Success -
08/17/2004, 13:43:25, Disk Drive Integrity Test, Compact Flash, , , , , Success -
08/17/2004, 13:43:25, Disk Drive Integrity Test, Compact Flash, , , , , Success -
Close

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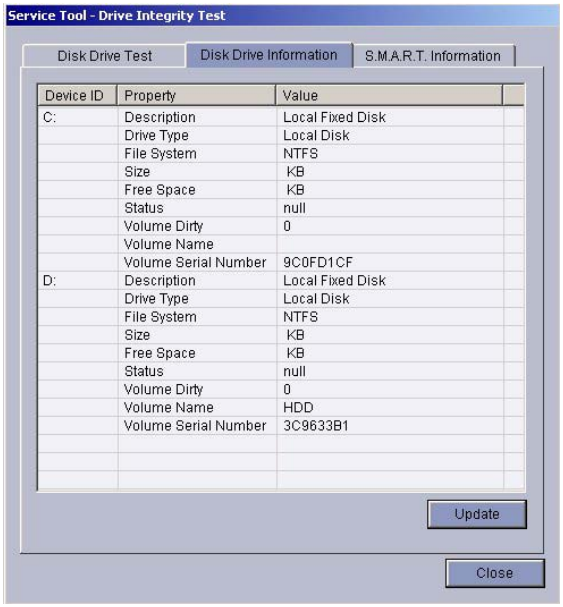
5. Click the ***Disk Drive Information*** tab. Information about the disk devices displays.

6. Click ***Update*** to refresh the displayed values.



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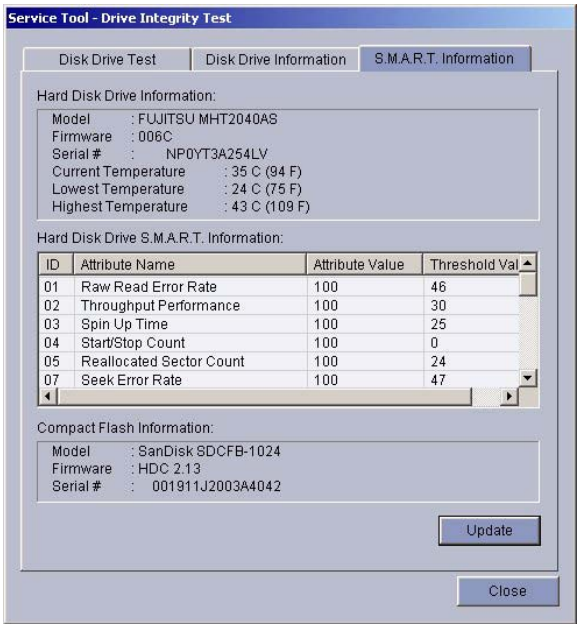
7. Click the ***S.M.A.R.T Information*** tab. SMART (Self Monitoring Analysis and Reporting Technology) information about the disk media displays.
8. To update the displayed values, click ***Update***.


Service Tool - Drive Integrity Test
Disk Drive Test
Disk Drive Information
S.M.A.R.T. Information
Hard Disk Drive Information:
Model : FUJITSU MHT2040AS
Firmware : 006C
Serial # : NP0YT3A254LV
Current Temperature : 35 C (94 F)
Lowest Temperature : 24 C (75 F)
Highest Temperature : 43 C (109 F)
Hard Disk Drive S.M.A.R.T. Information:
ID
Attribute Name
Attribute Value
Threshold Val
01 Raw Read Error Rate 100 46
02 Throughput Performance 100 30
03 Spin Up Time 100 25
04 Start/Stop Count 100 0
05 Reallocated Sector Count 100 24
07 Seek Error Rate 100 47
Compact Flash Information:
Model : SanDisk SDCFB-1024
Firmware : HDC 2.13
Serial # : 001911J2003A4042
Update
Close

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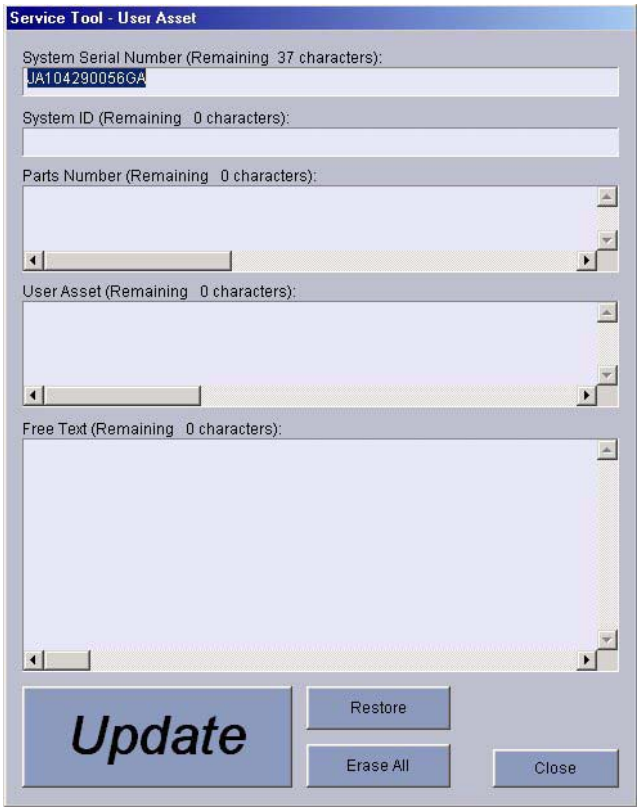
9. Click ***Close*** to close the ***Service Tool - Drive Integrity Test*** window.

User Asset Management

1. From the ***CIC Service Tool*** window, double-click the ***User Asset Management*** icon. The ***Service Tool - User Asset Management*** window displays.



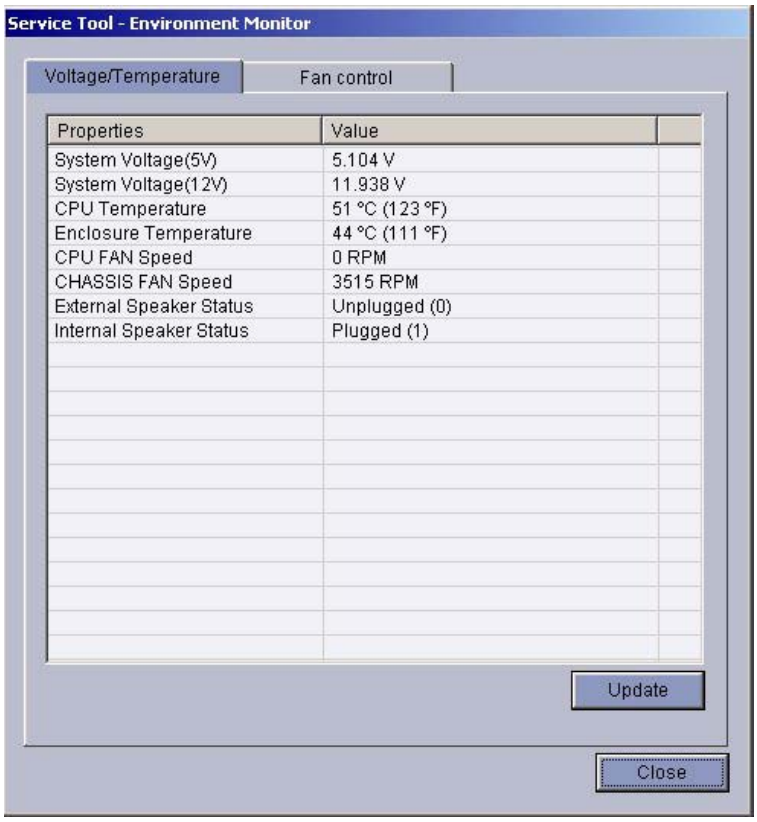
2. Update the fields as needed and click ***Update***.

Check the status of the internal hardware operating conditions and the processor fan operation

Complete the following procedure to verify the internal hardware operating conditions and the operation of the internal processor fan:

1. From the ***CIC Service Tool*** window, double-click the ***Environment Monitoring*** icon. The ***Service Tool - Environment Monitoring*** window displays.
2. To display the hardware environmental operating conditions, complete the following steps:
   a. Click the ***Voltage/Temperature*** tab. Information about CIC Pro current

internal component voltage/temperature displays.



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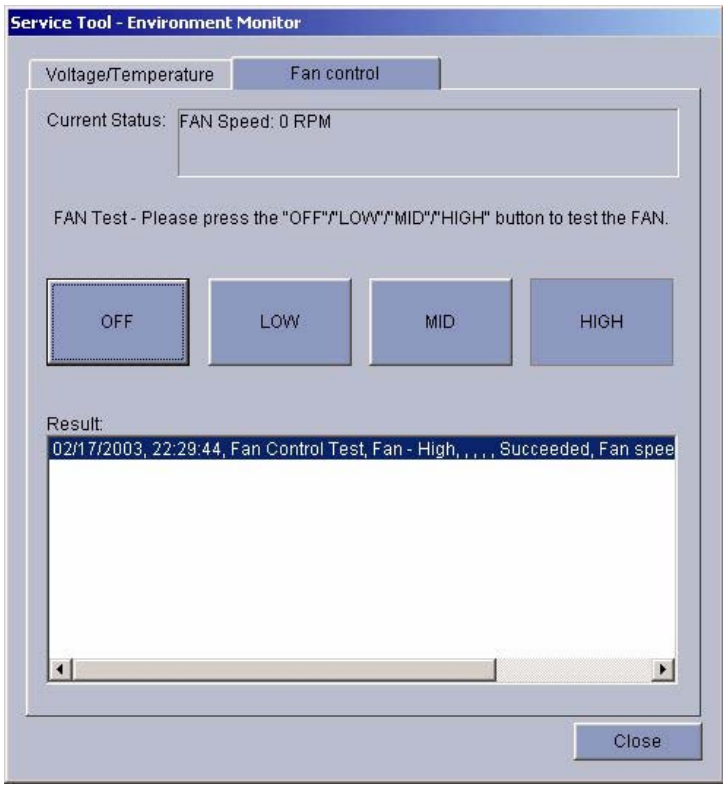
Properties	Value	Acceptable limits
System Voltage(5V)	Actual real-time voltage of the CIC Pro center's 5-volt internal power sub-system.	*4850 to 5250 mV*
System Voltage(12V)	Actual real-time voltage of the CIC Pro center's 12-volt internal power sub-system.	*11400 to 12600 mV*
CPU Temperature	Real-time CIC Pro center's internal temperature at the CPU.	*5 — 90 C*
Enclosure Temperature	Real-time CIC Pro center's internal temperature.	*5 — 70 C*
CPU FAN A Speed	Real-time CIC Pro center's CPU fan speed.	*2700 — 4000 RPM*
CHASSIS FAN B Speed	Real-time CIC Pro center's chassis fan speed.	*1700 — 4000 RPM*

External Speaker Status	*Plugged (1)* indicates connector plugged into the external speaker socket; *Unplugged (0)* indicates nothing plugged into the external speaker socket.	*Plugged (1)*
Internal Speaker Status	*Plugged (1)* indicates connector plugged into the internal speaker socket; *Unplugged (0)* indicates nothing plugged into the internal speaker socket.	*Plugged (1)*

b. To update the displayed values, click ***Update***.

3. To test the operation of the internal processor fan, complete the following steps:

a. Click the ***Fan Control*** tab. The ***Fan Control*** window displays.



b. Click the ***OFF*** button. The results of the fan control test display in the ***Result*** field.

c. Repeat the previous step for the ***LOW***, ***MID*** and ***HIGH*** control speed buttons.

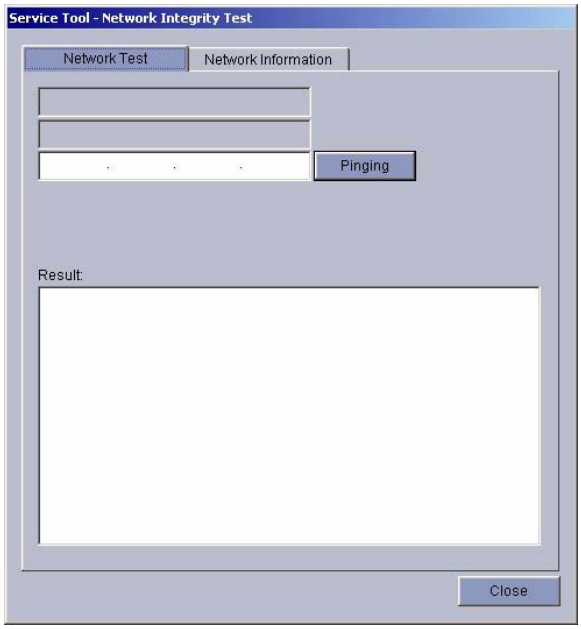
d. If each fan speed setting test ***Succeeded***, the CIC Pro center passed this test.

4. Click ***Close*** to close the ***Service Tool - Environment Monitor*** window.

Check the network communication and the status of other networked devices

Complete the following procedure to verify the CIC Pro center can interface with other networked devices:

1. From the ***CIC Service Tool*** window, double-click the ***Network Integrity*** icon. The ***Service Tool - Network Integrity*** window displays.
2. Click the ***Network Test*** tab.



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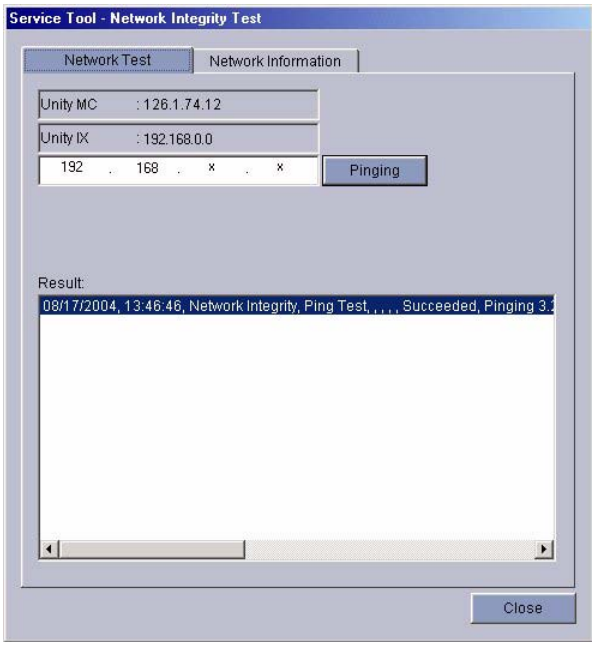
3. Next to ***Pinging***, type the IP address of a known device on the network.
4. Click ***Pinging***. The results of the network ping display in the ***Result*** field.


Service Tool - Network Integrity Test
Network Test
Network Information
Unity MC : 126.1.74.12
Unity IX : 192.168.0.0
192 . 168 . x . x
Pinging
Result:
08/17/2004, 13:46:46, Network Integrity, Ping Test, , , , , Succeeded, Pinging 3.
Close

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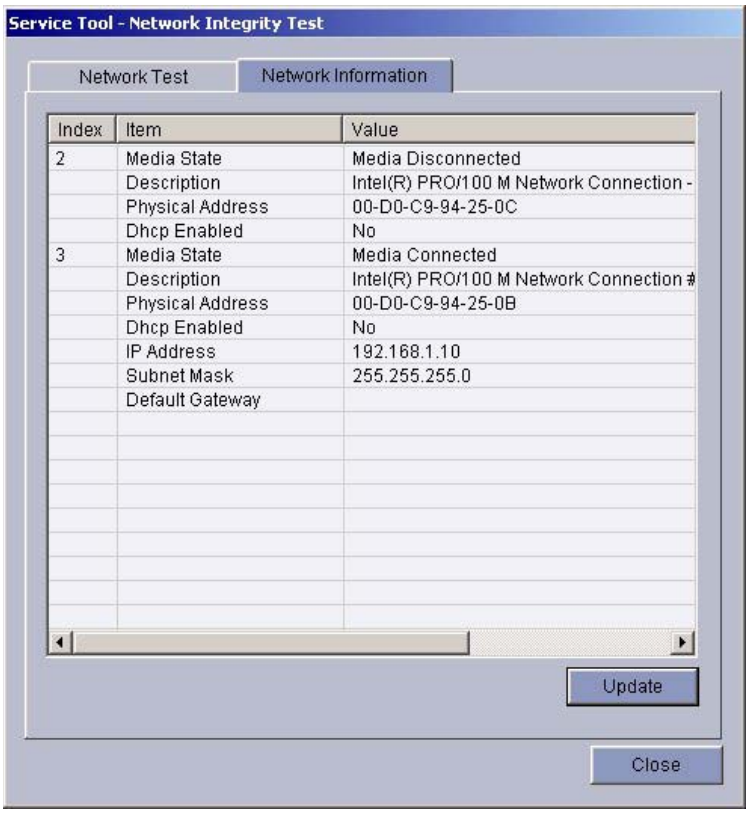
5. Click the ***Network Information*** tab. Information about the CIC Pro network connection devices displays.



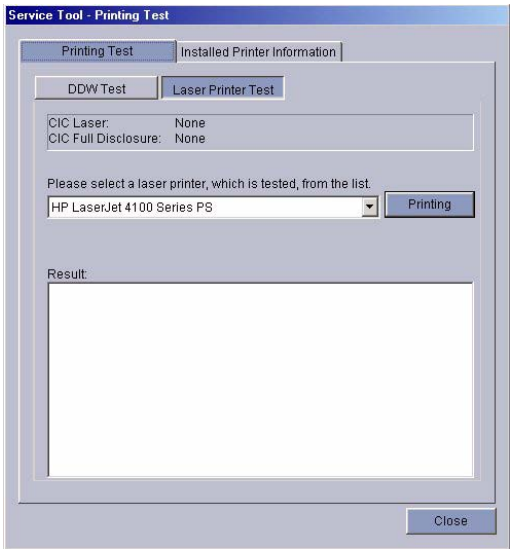
6. To update the displayed values, click ***Update***.
7. Click ***Close*** to close the ***Service Tool - Network Integrity Test*** window.

Check the printing of a test page and the status of installed printers

Complete the following procedure to print a digital writer (DDW) or laser printer test page and to review the status of the installed printers.

1. From the ***CIC Service Tool*** window, double-click the ***Printing Test*** icon. The ***Service Tool - Printing Test*** window displays.
2. Click the ***Printing Test*** tab.
3. To print a digital writer (DDW) test page, complete the following steps:
   a. Click the ***DDW Test*** button.
   b. Click the ***Start - Test Pattern*** button.
   c. If a test page printed out, click ***Yes***. The CIC Pro center passed this test.
   d. If a test page did not print out, click ***No***. The CIC Pro center failed this test.
4. To print a laser printer test page, complete the following steps:
   a. Click ***Laser Printer Test***.
   b. Next to ***Printing***, click the down arrow to display a list of available printers.

c. Choose a laser printer from the list.



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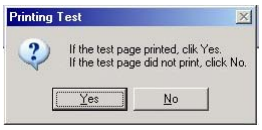
d. Click ***Printing***. A test page should print out and ***Printing Test*** window displays.



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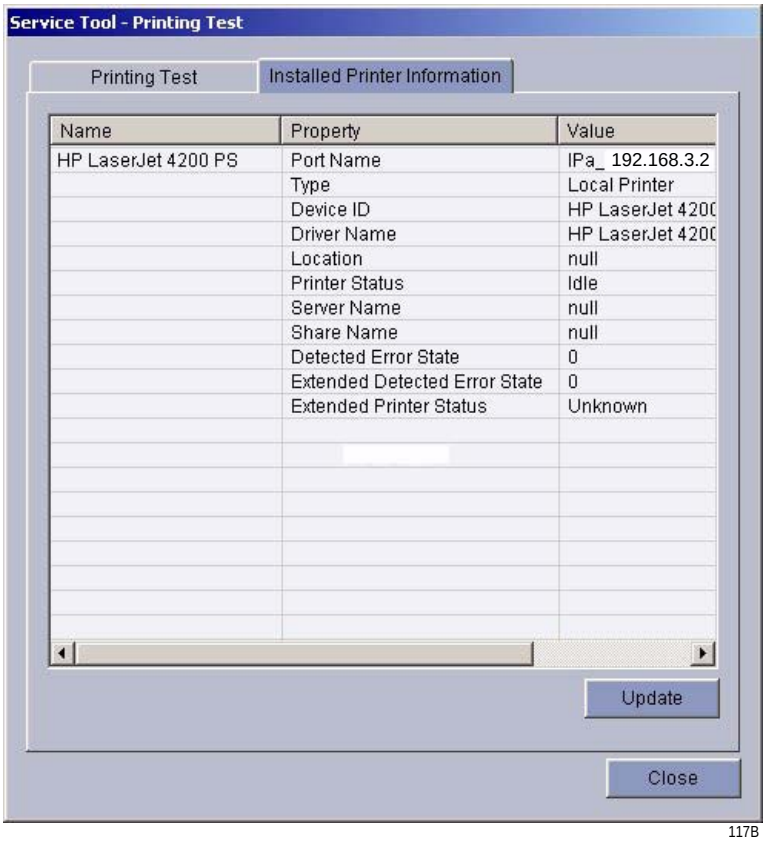
e. If a test page printed out, click ***Yes***. The CIC Pro center passed this test.

f. If a test page did not print out, click ***No***. The CIC Pro center failed this test.

5. To display the status of installed printers, complete the following steps:

   a. Click the ***Installed Printer Information*** tab. Information about installed

printers displays.

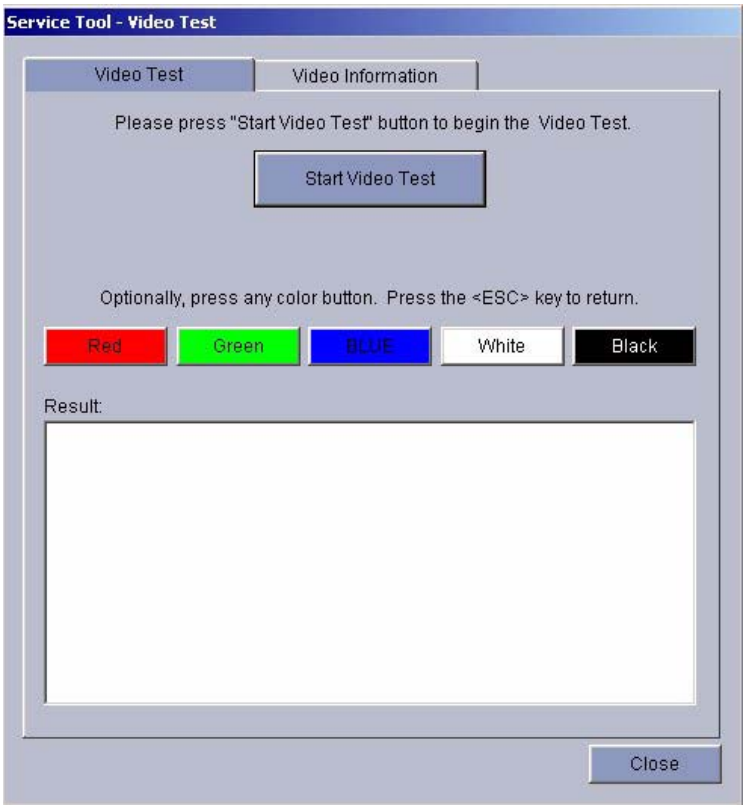


b. To update the displayed information, click ***Update***.

6. When finished, click ***Close*** to close the ***Service Tool - Printing Test*** window.

Check the video function and review the status of the video card and drivers

1. From the ***CIC Service Tool*** window, double-click the ***Video Test*** icon. The ***Service Tool - Video Test*** window displays.
2. Click the ***Video Test*** tab.



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3. To test the display of all RGB colors simultaneously, click the ***Start Video Test*** button. The monitor cycles through the test and displays all five RGB colors. The results of the test display in the ***Result*** field.

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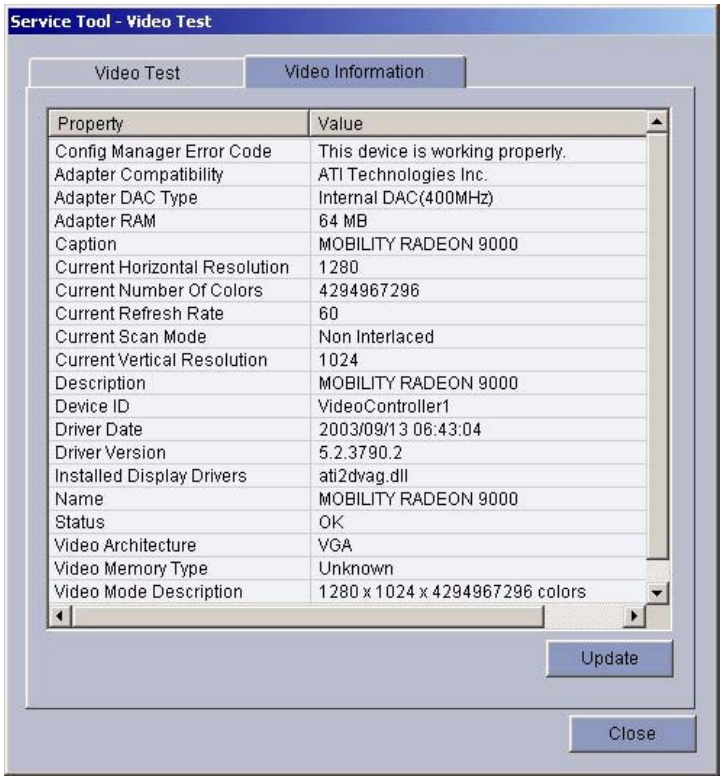
   a. If the selected color displayed correctly, click ***Yes***.
   b. If the selected color did not display correctly, click ***No***.
4. To test the display of individual RGB colors, click the button corresponding to the color you want to test. The associated color displays, and the results of the test display in the ***Result*** field and the Video Test window displays.

5. Click the ***Video Information*** tab. Information about the CIC Pro video displays and can be used for troubleshooting the video card and drivers.



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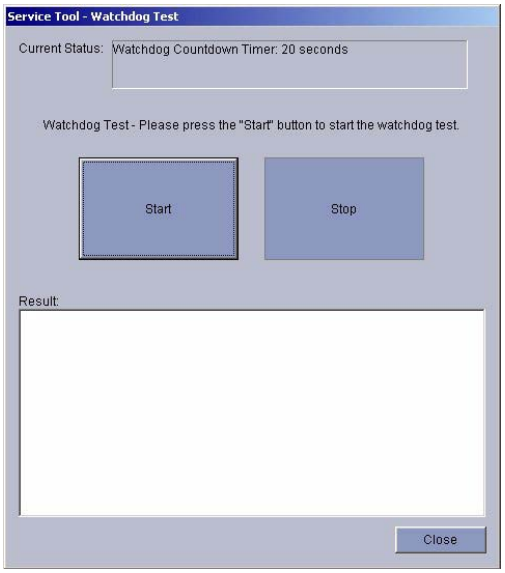
6. To update the displayed information, click ***Update***.
7. Click ***Close*** to close the ***Service Tool - Video Test*** window.

Check the operation of the Watchdog countdown function

NOTE

This procedure will cause the CIC Pro center to reboot.

1. From the ***CIC Service Tool*** window, double-click the ***Watchdog Test*** icon. The ***Service Tool - Watchdog Test*** window displays.
2. Click the ***Start*** button. The watchdog test counts down until you click the ***Stop*** button. The CIC Pro center reboots when the count down is completed.



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Repair log

A repair log is included for your convenience to record the repair history of the product.

Unit Serial Number: Institution Name:		
Date	Maintenance/Repair	Technician

A Technical Specifications

Due to continual product innovation, GE design and specifications for this product are subject to change without notice.

NOTE

Some features are available only with optionally purchasable licenses.

General performance specifications

General performance specifications	
Item	**Description**
Number of patients	■ 1 to 16 in standard multi-view display format. ■ Temporarily display a detailed view of one additional monitoring device (17th device) located anywhere within the Unity-MC network.
Display format	■ User selectable for up to four waveforms for 16 patients per display. ■ Large and small secondary parameter font formats options. ■ Numeric font colors matched to waveforms.
Displayed wavelengths	Up to 11 seconds of waveform, dependent on configuration choice.
Display information	■ Access to detailed patient information. ■ Arrhythmia and ST histories sortable by type and time. ■ Configurable graphic trends with arrhythmia events trended by type and tabular vital signs. ■ Full disclosure data viewable in strip, calipers and page view with zoom. Parameter numeric and waveforms available in a live view presentation.
Electronic calipers	Measure horizontal (time) and vertical (voltage) distances along historical waveform data.
Multi-view real-time trend graph	■ Graphic trend displayed along side the real-time waveform and parameter information. ■ Available in up to 16 live waveform windows at once. ■ Trend the last hour of trend data from up to two parameter numerics. ■ Support for Afib trending using select monitoring devices.
Graphic trends	■ Up to 12 parameters trends (per trend group) in full screen mode. ■ Up to 12 user defined trend groups to allow customized viewing of trends ■ Arrhythmia trend that displays indicators for each event directory arrhythmia event in rows by type; Event counting per time period provided. ■ Support for Afib trending using select monitoring devices.
Vital signs	■ Parameter order sortable in up to 12 user defined sort modes. ■ Ability to display only times in which a specific episodic parameter type occurs (e.g., NBP times)
Event directory	■ Viewable alongside and time synced with all historical view clients. ■ Sortable by type and time. ■ Provides key information about each event including type, time, severity and quantity of each event type.

General performance specifications	
Item	**Description**
Full disclosure page review	■ Review large amounts of full disclosure waveform data at one time. ■ Configurable to view up to five different user-defined waveforms at once. ■ Configurable to print up to eight user-defined waveforms at once. ■ Line duration settable from 15 seconds to up to one minute per line. ■ Variable number of lines based on window height. ■ ECG, IBP, SPO2 and Respiration waveforms available in this view. ■ Floating or fixed zoom window.
Full disclosure storage	Up to 12 waveforms and all parameters with licenses for: ■ No license installed on system (1 hour actual). ■ 24 hour license (28 hours actual). ■ 48 hour license (54 hours actual). ■ 72 hour license (76 hours actual). All licensed data viewable from the CIC Pro center on the Unity Network MC and Unity Network IX networks.
Monitor control	Remote control of select ADT, parameter, alarm and patient monitor settings.
ADT picklist	Retrieval of ADT information from a hospital HIS system via the Aware Gateway Server in a query picklist format.
Dual display (secondary display)	■ Capability to use the second display for review of complete patient information including arrhythmia histories, graphic trends, tabular vital signs, full disclosure waveforms, and parameter numeric. ■ Second screen allows for multiple display clients to be viewed at one time based on user need.
Citrix and web connectivity	■ Capability to access web-based applications such as MUSE Web via an embedded browser. ■ Optional access to Citrix servers via a Citrix client.
User favorites	Configurable favorite buttons that allow quick access to often used screen formats.
MultiKM	Ability to use one mouse and one keyboard across up to eight displays.
Network connectivity	■ Unity Network MC real-time monitoring network. ■ Unity Network IX hospital enterprise network. ■ Patient Data Server (PDS) connectivity for patient centric trends and histories. ■ Aware Gateway Server (AGS) connectivity for retrieval of ADT information.
Controls	■ USB keyboard and USB optical mouse. ■ Optional touchscreen. ■ Optional MultiKM capabilities which allow one keyboard and mouse to be shared across several systems without a switch box.
Recorder (optional)	■ 2-inch external direct digital writer. ■ Laser printer.

Alarms

Alarm specifications	
Item	**Description**
Patient alarms	■ Configure monitoring device alarm levels for arrhythmia and parameter limit alarms. ■ Levels supported: crisis, warning, advisory and message.
Parameter alarm limits	Configure monitoring device alarm limits for select parameters.
System alarms	■ Configure monitoring device alarm levels for system type alarms. ■ Levels supported: warning, advisory and message.
Notification	Audible, visual and multi-color alarm display buttons to view alarming beds.
Display of alarm information	Alarm information located in waveform window, parameter box, alarm display buttons and history storage (dependent on level).
Silencing	■ Ability to request alarming bedsides to silence current patient alarms for up to one minute. ■ Ability to silence ***NO COMM*** alarms.

Display requirements

Display requirements	
Item	**Description**
Display size	18, 19, 20-inch CRT or flat panel display.
Resolution	Minimum of 1280 x 1024.
Touch screen	GE qualified touch screen flat panel display.

Computer specifications

Computer specifications	
Item	**Description**
Main processor	Minimum 933 MHz Pentium III processor.
Main memory	Minimum 512 MB DDR SDRAM.
Video and graphics	■ Dual DVI-I video outputs; Convertible in pairs to analog DB15 VGA using interface adapter. ■ Output 1280 x 1024, 60Hz (LCD); 1280 x 1024 75Hz (CRT). ■ (1600 x 1200 capable for future applications).
Storage	■ Minimum of 1 GB compact flash (OS and application). ■ Minimum of 40 GB hard drive.
Interfaces	■ Dual DVI-I connections. ■ Dual Ethernet connections. ■ Four USB ports (USB keyboard and mouse). ■ Dual RS-232 serial ports. ■ Amplified Speaker output.
Audio output	■ Manufacturer supplied external speakers required and provided. ■ Dual-redundant internal speakers provided.
Cooling	Redundant, computer controlled fans; forced air cooling at 28 CFM.
Mounting	■ Vertical: Two orientations (with optional stand). ■ Horizontal desktop: One orientation. ■ Wall mount capable.

Software platform

Software platform	
Item	**Description**
Operating system	■ Microsoft Windows XP embedded. ■ OS runs from compact flash.
Software loading	Via network interface.

Power requirements

Power specifications	
Item	**Description**
Voltage	Auto-ranging for 100-120 VAC or 200-240 VAC ±10%.
Current	1.0 A (max) at 115 VAC, 0.5 A (max) at 220V.
Frequency	50/60 Hz ±3 Hz.
Power	100 W (max), 50 W (typical).

Certifications

- UL 60601-1
- CAN/CSA C22.2 No. 601.1
- IEC/EN 60601-1
- IEC/EN 60601-1-2
- IEC/EN 60601-1-4
- CE marked to the Medical Devices Directive 93/42/EEC

Environmental specifications

Environmental specifications	
Item	**Description**
Operating	■ Temperature 50F to 95F (+10C to +35C). ■ Relative Humidity 30% to 75% RH non-condensing.
Transport and Storage	■ Temperature -4F to 140F (-20C to 60C) with a maximum rate of change not to exceed 10C/hr. ■ Relative Humidity 10% to 85% RH non-condensing.

Physical specifications

Physical specifications	
Item	**Description**
Height	3.2 in (8.0 cm).
Width	16.2 in (41.0 cm).
Depth	13.0 in (33.0 cm).
Weight	14.5 lb (6.6 kg) approximate.

Recorder (optional)

- 2-inch external Direct Digital Writer (PRN 50/PRN 50-M)
- Laser printer

B Upgrading CIC Pro center software

Overview

NOTE

- This procedure is intended for use by qualified service personnel on Bedrock platform CIC Pro centers running software version 5.0.x or later. It is intended for upgrading CIC Pro center clinical application or service application software packages.
- There are different types of software package files you may be activating on a CIC Pro center. Some are simply software patches that enhance the software processing, others add features or functions. You may be required to configure settings related to any added software features or functions. See the *What's in this Release* document that shipped with the software upgrade kit for information about added features or functions.
- Upgrading the CIC Pro center from v4.1.1 to v5.0 requires a reimaging of the hard disk and the compact flash drives.

You can upgrade CIC Pro center clinical application or service application software by installing software package files from a service laptop via CD ROM. Both the service laptop and the Bedrock hardware platform CIC Pro centers must be connected to the Unity Network IX network.

The software installation process occurs in the background and does not impact the active monitoring of patients by the target CIC Pro centers. The software package files remain inactive on the target CIC Pro centers until you activate them.

The activation process includes using the local Webmin service interface each of the target CIC Pro centers. Then, after a manual reboot the CIC Pro center runs the activated software.

NOTE

Rebooting a CIC Pro center stops active patient monitoring. You will need to plan for and establish alternate patient monitoring while you are activating the software package files on the target CIC Pro centers.

This chapter describes the procedures required to upgrade clinical or service application software packages on a CIC Pro center:

- "Required equipment".
- "Preparing the CIC Pro center".
- "Preparing the service laptop".
- "Installing the software on the target CIC Pro centers".
- "Activating the software packages".
- "Completing the checkout procedures".

Required equipment

The following equipment is required to upgrade CIC Pro center software:

- Service laptop (PC laptop or desktop computer) equipped with an Ethernet network card, and running Windows® NT, 2000, or XP. This PC functions as the software transfer server.
- Ethernet crossover cable.

- "CIC Pro Clinical Information Center Bedrock Hardware Platform Service Manual." See the "Configuration" and "Checkout" chapters.
- CIC Pro center's software upgrade CD.

Preparing the CIC Pro center

The CIC Pro center must be running and be connected to the Unity Network IX network.

NOTE

- The software installation process does not require the CIC Pro center to be disconnected from the Unity Network IX or MC networks. Do not stop the active monitoring of patients via the CIC Pro center. The software upgrade files remain inactive on the target CIC Pro centers until you are ready to activate them. See "Installing the software on the target CIC Pro centers" on page B-7.
- To activate the software package files on a target CIC Pro center, you must use the local Webmin service interface tool to activate the software. The CIC Pro center automatically reboots and begins to run the updated software.

  Rebooting a CIC Pro center stops active patient monitoring. You will need to plan for and establish alternate patient monitoring while you are activating the software upgrade files on the target CIC Pro centers. See "Activating the software packages" on page B-8.

Preparing the service laptop

This section describes the procedures required to prepare the service laptop for installing software packages to networked CIC Pro centers:

- "Connect the service laptop to the Unity Network IX network".
- "Set up the service laptop's network domain"
- "Start the software transfer utility"
- "Enter the Unity Network IX network addresses of the CIC Pro centers to be updated"

Connect the service laptop to the Unity Network IX network

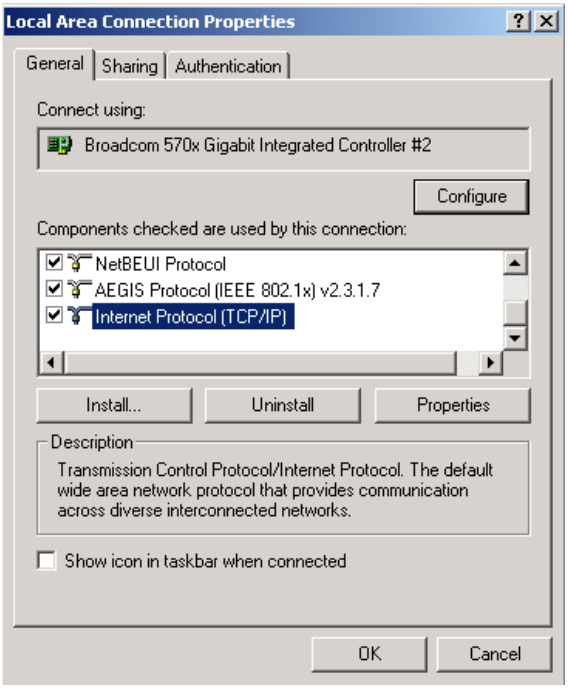
WARNING

LOSS OF ALARMS — When using a service laptop to install or reload software onto the CIC Pro center, ***do not*** connect the Ethernet cable from the service laptop to the CIC Pro center's Unity Network MC network port. You must use the Unity Network IX network to install or reload software.

- Connect an Ethernet cable from the service laptop's Ethernet port to the facility's Unity Network IX network.

Set up the service laptop's network domain

1. From the Windows taskbar, click ***Start*** > ***Settings*** > ***Control Panel*** > ***Network and Dial-up Connections***. The ***Network and Dial-up Connections*** window displays.
2. Right-click on the network port connected to the Unity Network IX network. and select ***Properties***. The ***Local Area Connection Properties*** window displays.



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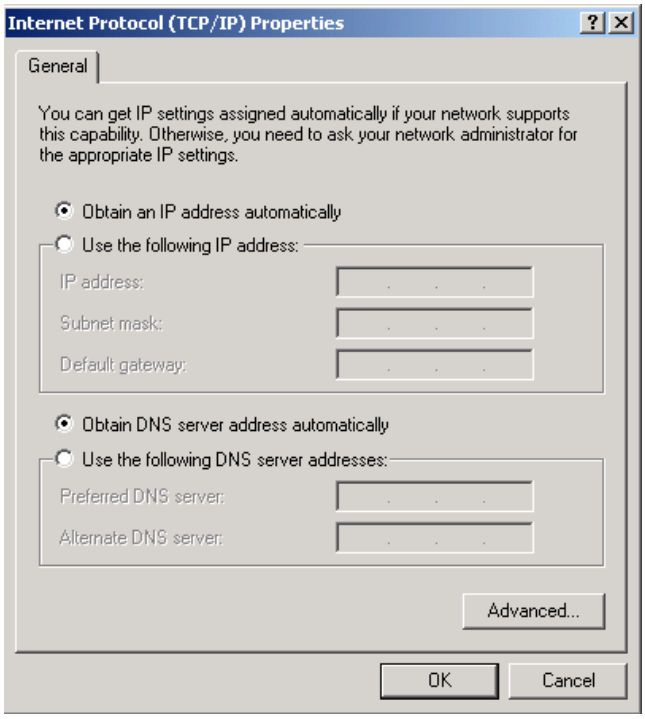
3. Under ***Components checked are used by this connection***, scroll down and highlight ***Internet Protocol (TCP/IP)*** and click ***Properties***. The ***Internet Protocol (TCP/IP)*** window displays.


Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
Subnet mask:
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

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4. Next to ***Use the following IP address***, click to fill the radio button to select this option. Complete the following steps:
   a. Type an ***IP address*** that is not used at this site.
   b. Type the ***Subnet mask*** address. The address must match the ***Subnet mask*** address used at this site.
5. Click ***OK*** to save this configuration and close the ***Internet Protocol (TCP/IP)*** window.
6. Click ***OK*** to close the ***Local Area Connection Properties*** window.

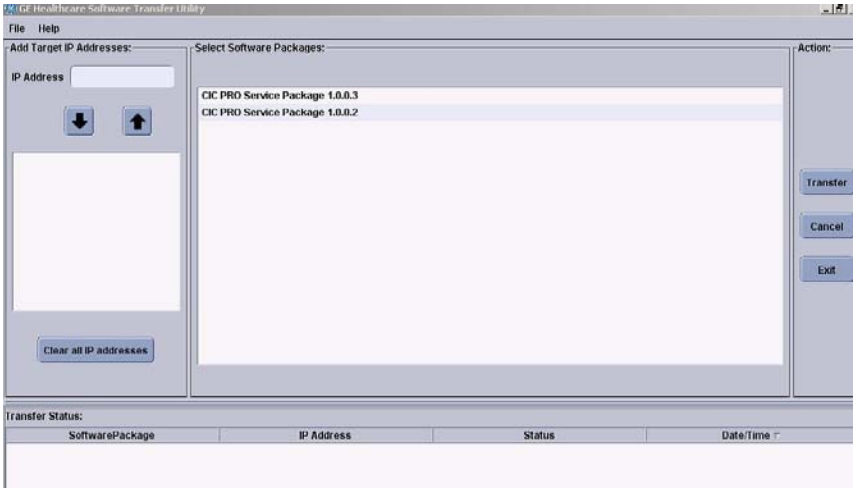
Start the software transfer utility

- Insert the CD containing the software packages into the service laptop's CD drive. After approximately one minute, the ***GE Healthcare Software Transfer Utility*** window automatically displays.

  NOTE

  If the GE ***Healthcare Software Transfer Utility*** does not automatically display, navigate to the contents of the CD and double-click the ***auto.bat***

file.



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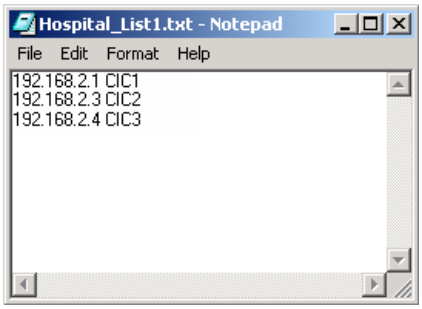
Enter the Unity Network IX network addresses of the CIC Pro centers to be updated

Complete the following procedure to manually type in the CIC Pro center Unity Network IX network addresses or automatically upload the CIC Pro center Unity Network IX network addresses from a ***.tx***t file:

1. To manually type the IP addresses of the CIC Pro centers you want to install the software packages to, complete the following steps:
   a. Under ***Add Target IP Addresses,*** type the IP address of a CIC Pro center you want to install the software packages on.
   b. Click (down arrow) to add this IP Address to the displayed list.
   c. Repeat step a and step b for each additional CIC Pro center you want to install the software packages on.
2. To automatically upload a ***.txt*** file containing the list of CIC Pro center IP addresses you want to install the software packages on, complete the following steps:
   a. Open the Windows ***Notepad*** application.
   b. Type one IP address per line of type. To add a brief descriptor (e.g. ***CIC1***), enter a space after the IP address and type the descriptor. See the following

example:



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c. Click ***File*** > ***Save***. Specify the destination and file name of this ***.txt*** file so you can easily navigate to it.

d. From the ***GE Healthcare Software Transfer Utility*** window, click ***File*** > ***Import IP File***. Navigate to the ***.txt*** file containing the IP addresses. The IP addresses should display in the ***Add Target IP Addresses*** list.

3. Verify these are the CIC Pro centers you want updated.

NOTE

All IP addresses displayed in the ***GE Healthcare Software Transfer Utility*** > ***Add Target IP Address*** list will have the selected software packages installed on them. Verify the list of target IP addresses only contains the CIC Pro centers you want updated.

4. To remove an IP 192.168.3.2address from the displayed list, select the IP address and click (up arrow).

Installing the software on the target CIC Pro centers

Once the ***GE Healthcare Software Transfer Utility*** > ***Add Target IP Address*** list only displays the IP addresses of the CIC Pro centers you want to update, you are ready to start installing the software packages.

Complete the following procedure to install your selected software packages on the target CIC Pro centers:

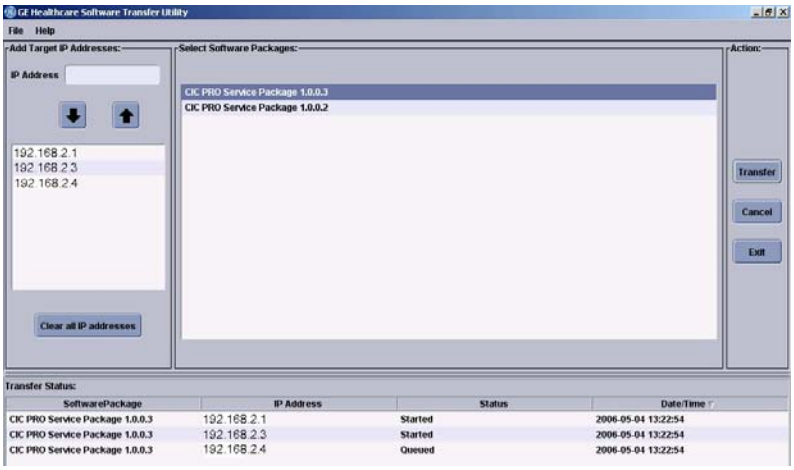
1. Under ***Select Software Packages***, choose the software packages you want to install on the target CIC Pro centers.

2. Click ***Transfer***. ***Software Package*** file transfer information displays in the ***Transfer Status*** window at the bottom of the ***GE Healthcare Software Transfer Utility*** window.

NOTE

- If you selected more than one software package to be installed on the targeted CIC Pro centers, each package is installed in sequential order.
- A software package can only be installed on a small number of target devices at the same time. As a result, the software install may occur in

sequential groupings.



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3. To cancel a software install, click ***Cancel***.

   NOTE

   Clicking ***Cancel*** only cancels the installation of the ***Queued*** software packages identified in the ***Transfer Status*** window. Once the installation of a software package has started, you cannot cancel it.

4. To save the list of displayed IP address in a ***.txt*** file format, click ***File*** > ***Export IP File***. Specify the destination and file name of this ***.txt*** file.
5. To exit the ***GE Healthcare Software Transfer Utilit***y, click ***Exit***.
6. Disconnect the service laptop's Ethernet cable from the Unity Network IX network.

Activating the software packages

WARNING

LOSS OF MONITORING — Before continuing, coordinate with the site's clinical staff to establish patient data communications with a different unit or close patient observation until the monitoring function at the CIC Pro center is restored.

To activate the software package files on a target CIC Pro center, you must use the local Webmin service interface tool to activate the software package files, then manually reboot the CIC Pro center.

Log on to the local Webmin service interface

See "Log on to the local Webmin service interface" on page 4-6.

Display the Software Management window

1. From the Webmin application window, click ***Configuration*** (if the ***Configuration*** window is not already displayed).

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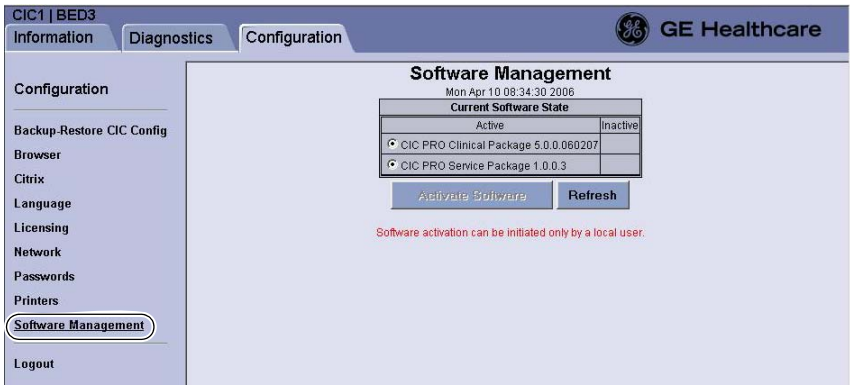
2. From the ***Configuration*** window, click the ***Software Management*** link. The ***Software Management*** window displays.



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3. Click to fill the radio button next to the software packages (clinical application or service application) you need to activate.
4. Click ***Activate Software***.
5. From the ***Legal Statement*** window, click ***Agree***. The CIC Pro center activates the selected software and automatically reboots. After rebooting, the clinical application window displays.

Completing the checkout procedures

After activating the installed software and before using the CIC Pro center in a patient environment, you must verify proper operation of this device in the patient care and networking environments.

To verify proper operation in the patient care and networking environments, complete all of the checkout procedures identified in Chapter 9, “Checkout” .

C Electromagnetic Compatibility

Electromagnetic Compatibility (EMC)

Changes or modifications to this system not expressly approved by GE can cause EMC issues with this or other equipment. This system is designed and tested to comply with applicable regulation regarding EMC and must be installed and put into service according to the EMC information stated in this appendix.

WARNING
Use of portable phones or other radio frequency (RF) emitting equipment near the system may cause unexpected or adverse operation.

WARNING
The equipment or system should not be used adjacent to, or stacked with, other equipment. If adjacent or stacked use is necessary, the equipment or system should be tested to verify normal operation in the configuration in which it is being used.

Guidance and Manufacturer's Declaration – Electromagnetic Emissions

The CIC Pro is intended for use in the electromagnetic environment specified below. It is the responsibility of the customer or user to assure that the CIC Pro is used in such an environment.

Emissions Test	Compliance	Electromagnetic Environment – Guidance
RF Emissions EN 55011	Group 1	The equipment uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF Emissions EN 55011	Class A	The equipment is suitable for use in all establishments other than domestic and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic Emissions EN 61000-3-2	Class A	
Voltage Fluctuations/ Flicker Emissions EN 61000-3-3	Complies	

Guidance and Manufacturer's Declaration – Electromagnetic Immunity

The CIC Pro is intended for use in the electromagnetic environment specified below. It is the responsibility of the customer or user to assure that the CIC Pro is used in such an environment.

Immunity Test	EN 60601 Test Level	Compliance Level	Electromagnetic Environment – Guidance
Electrostatic Discharge (ESD) EN 61000-4-2	± 6 kV contact ± 8 kV air	± 6 kV contact ± 8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical Fast Transient/Burst EN 61000-4-4	± 2 kV for power supply lines ±1 kV for input/output lines	± 2 kV for power supply lines ±1 kV for input/output lines	Mains power should be that of a typical commercial or hospital environment.
Surge EN 61000-4-5	± 1 kV differential mode ± 2 kV common mode	± 1 kV differential mode ± 2 kV common mode	Mains power should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines EN 61000-4-11	<5% U_t (>95% dip in U_t) for 0.5 cycles <40% U_t (>60% dip in U_t) for 5 cycles <70% U_t (>30% dip in U_t) for 25 cycles <5% U_t (>95% dip in U_t) for 5 s	<5% U_t (>95% dip in U_t) for 0.5 cycles <40% U_t (>60% dip in U_t) for 5 cycles <70% U_t (>30% dip in U_t) for 25 cycles <5% U_t (>95% dip in U_t) for 5 s	Mains power should be that of a typical commercial or hospital environment. If the user of the equipment requires continued operation during power mains interruptions, it is recommended that the equipment be powered from an uninterruptable power supply or a battery.
Power Frequency (50/60 Hz) Magnetic Field EN 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.

NOTE:

U_t is the AC mains voltage prior to application of the test level.

Guidance and Manufacturer's Declaration – Electromagnetic Immunity

The CIC Pro is intended for use in the electromagnetic environment specified below. It is the responsibility of the customer or user to assure that the CIC Pro is used in such an environment.

Immunity Test	EN 60601 Test Level	Compliance Level	Electromagnetic Environment – Guidance
Conducted RF EN 61000-4-6	3 Vrms 150 KHz to 80 MHz	3 V rms	Portable and mobile RF communications equipment should not be used closer to any part of the equipment, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance $d = 1.2\sqrt{P}$
Radiated RF EN 61000-4-3	3 V/m 80 MHz to 2.5 GHz	3 V/m	$d = 1.2\sqrt{P}$ 80 MHz to 800 MHz $d = 2.3\sqrt{P}$ 800 MHz to 2.5 GHz where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer, and d is the recommended separation distance in meters (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey[a], should be less than the compliance level in each frequency range[b]. Interference may occur in the vicinity of equipment marked with the following symbol:

Note 1: At 80 MHz and 800 MHz, the higher frequency range applies.

Note 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by reflection from structures, objects, and people.

[a]Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radio, AM and FM radio broadcast, and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the equipment is used exceeds the applicable RF compliance level above, the equipment should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the equipment.

[b]Over the frequency range 150 KHz to 80 MHz, field strengths should be less than 3 V/m.

Recommended Separation Distances

The table below provides the recommended separation distances (in meters) between portable and mobile RF communications equipment and the CIC Pro.

The CIC Pro is intended for use in the electromagnetic environment on which radiated RF disturbances are controlled. The customer or the user of the CIC Pro can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the CIC Pro as recommended below, according to the maximum output power of the communications equipment.

	Separation Distance in Meters (m) According to Frequency of Transmitter		
Rated Maximum Output Power of Transmitter in Watts	150 kHz to 80 MHz [a] $d = 1.2\sqrt{P}$	80 MHz to 800 MHz [a] $d = 1.2\sqrt{P}$	800 MHz to 2.5 GHz [a] $d = 2.3\sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

[a] At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.

For transmitters rated at a maximum output power not listed above, the recommended separation distance [*d*] in meters (m) can be estimated using the equitation applicable to the frequency of the transmitter, where *P* is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

NOTE:

These guidelines may not apply in all instances. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

Compliant Cables and Accessories

WARNING
The use of accessories, transducers and cables other than those specified may result in increased emissions or decreased immunity performance of the equipment or system.

The table below lists cables, transducers, and other applicable accessories with which GE claims EMC compliance.

NOTE: Any supplied accessories that do not affect EMC compliance are not included.

Part No	Description	Maximum Lengths
201792-001	DVI-D to DVI-D Cable	1.8 m / 6 ft
418335-00x	RJ45 Category 5 Cable	N/A
2016193-001	USB Keyboard	N/A
TBA	USB Mouse	N/A
2019795-001	USB Cable	1.8 m / 6 ft
2006733-001	Serial Cable	1.8 m / 6 ft
2001323-001	Speakers	N/A
80274-006	AC Power Cord	1.8 m / 6 ft
2020737-001	NEC Display 20” LCD 20080UX+	N/A
418331-002	PRN50 printer	N/A
418708-001	Key Pad	N/A

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